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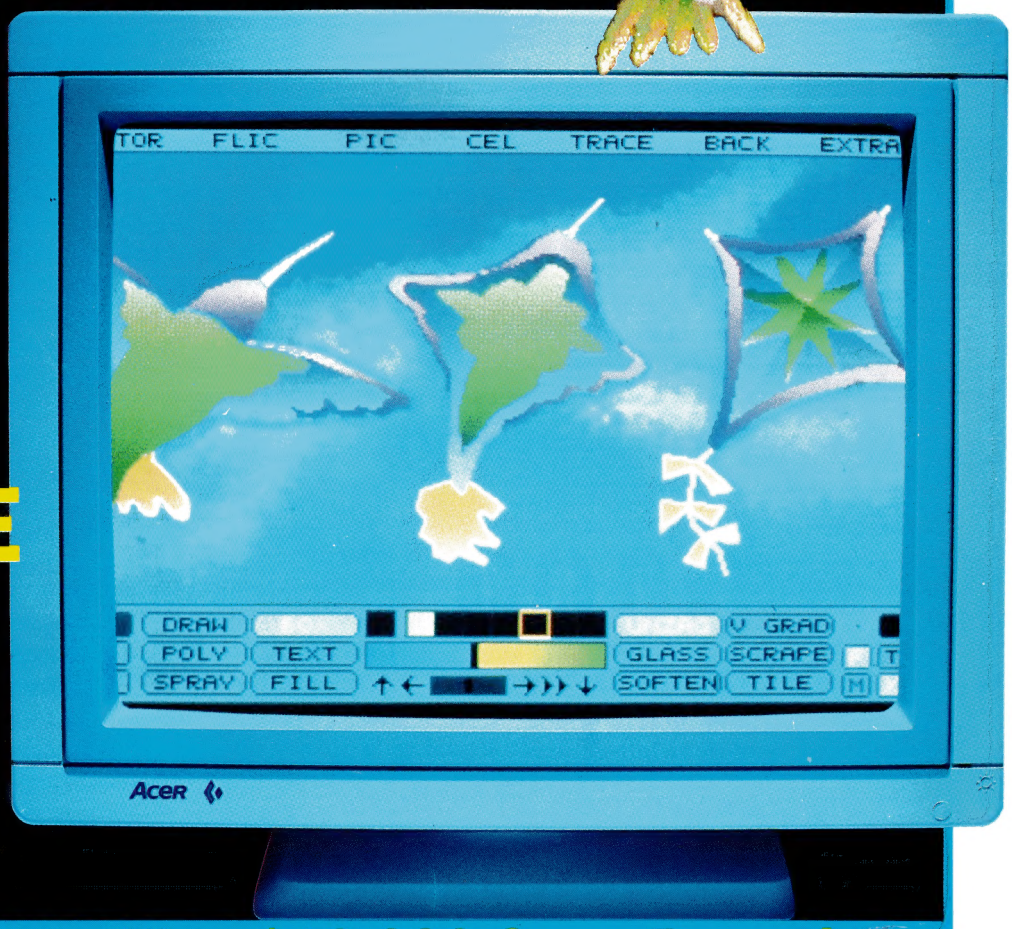

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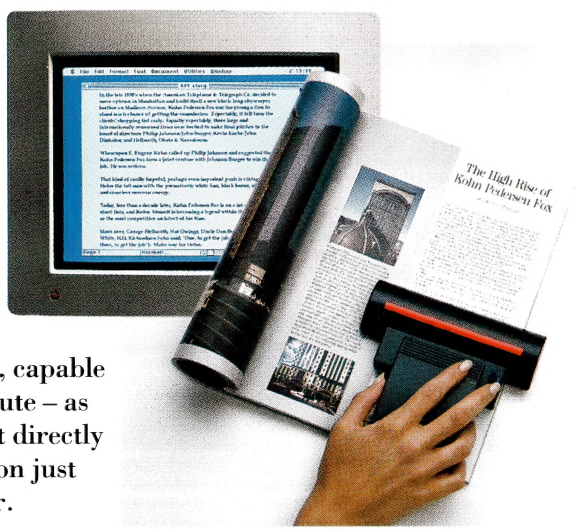

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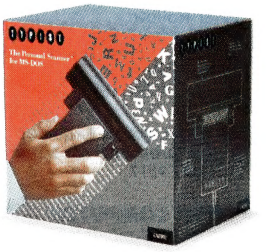

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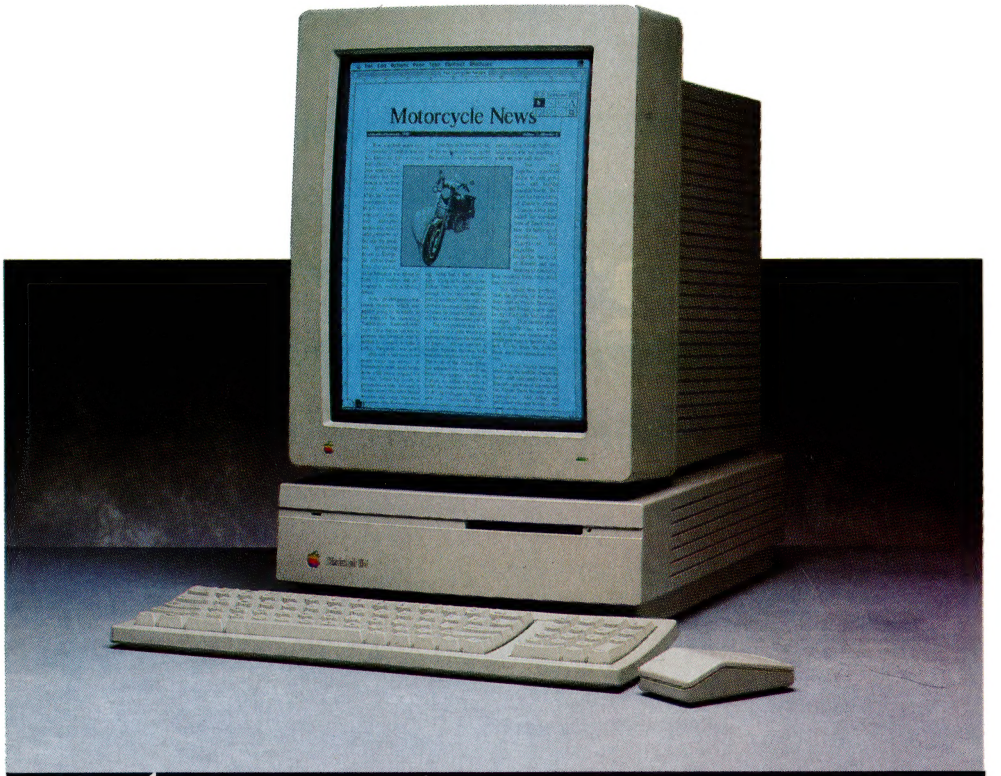

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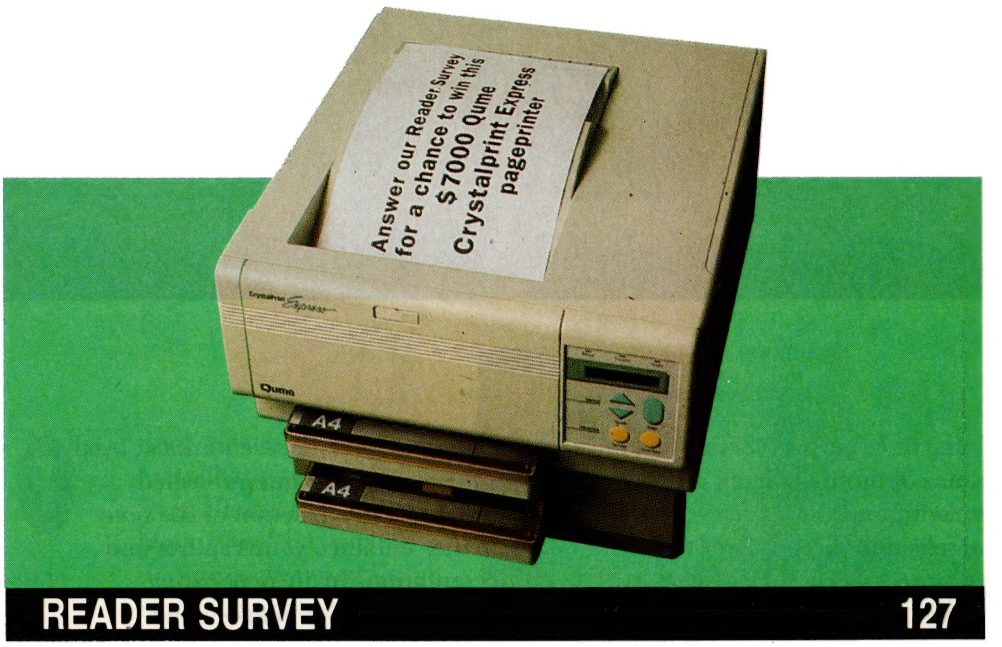

READER SURVEY 127

NEXT MONTH INCLUDES

IF YOU ARE looking for one-stop solutions to your computer problems, our double-barrelled feature in December will point the way: the reviews on integrated packages will show which gives the best mix for your business needs and our coverage of speciality software shows how specific those solutions can be. This issue also has the first of a series of articles on C++, the object oriented programming language that is taking developers by storm (it's going to change forever the way software behaves, so even non-programmers will find it of interest). For the curious, we have an excellent backgrounder on mass storage controllers.

This month's cover: Cover design by Rolf Hagenmaier; Twinhead 590 system and monitor courtesy of Dick Smith Electronics; images courtesy of Autodesk (Animator); photography by Greg McBean.

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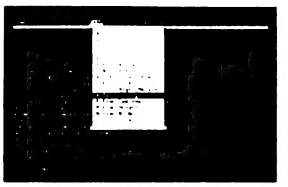

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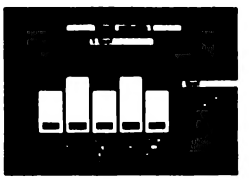

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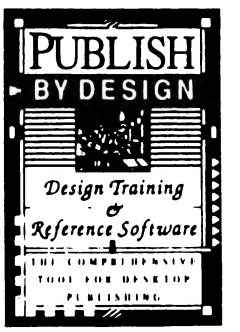

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JAKE KENNEDY

Not since '84!

IT'S BEEN A fun month. Our Personal Computer of the Year awards are getting close again (we'll be announcing the Finalists in January and the Winners in February) and I've been going over the recent releases for contenders. The upshot of that is a thought I've expressed in these pages before: break through developments are slowing down on the hardware side, while software is catching up.

It's about time too! For example, the 80286 chip was first put into a PC about six years ago. With the exception of OS/2, there is still no 'standard' operating system that can take advantage of all of its features. (Local developer Hi-Tech is about to change that, however – see our feature on the Queensland Computer Expo, p45.) In the meantime, hardware developments have bounded away: both Intel and Motorola are shipping second and third generation descendants of the 16-bit chip, but, generally, the software available to us hasn't really changed in several years.

Before I hear cries of 'What about Windows, DDE, PC Toolbook and object-oriented software?', let me point out that none of those has yet reached maturity and the concepts behind all of them are hardly new in the computing world.

This is starting to change, but it will be six or more months before real world users will feel those changes.

I've seen some very interesting applications in the past month that are really going to 'impact' on the industry (as they say in North Sydney). While I can't talk about most of these (and I don't like talking about unreleased products anyway: the real thing is so often a disappointment after the promises and idealised demos), there is one I would like to mention because, more than anything else I've seen lately, it points the way of the future.

November 1983

IBM Australia's Managing Director Brian Finn is to be congratulated for taking the initiative in proposing to the IBM America Far-East board that Australia is worthy of not only consuming hi-tech products, but also producing them – ***Les Bell, Editorial, p6.***

[The Gavilan portable] uses a high-resolution liquid crystal display to provide an interface similar to an Apple Lisa; below the screen is a touch panel which replaces the mouse and allows the user to point to objects on the screen – ***The Tenth Australian Computer Conference, p87.***

Yesterday WordPerfect demonstrated for me their WordPerfect Office, the LAN version. I'd put the standalone version through its paces already and thought, 'Ho-hum, another integrated package.' But what makes one different is that WordPerfect will be offering a unique system that works across multiple environments with essentially the same interface, software and commands. This means that users on a network with any combination of IBMs, Macs, Vaxes, whatever, will all be using what is essentially the same interface and the same software. The flow on from this is the best electronic mail system I have seen on a PC.

The developers have addressed all of the classic objections to e-mail and have also made it ready for X400 – more on it next month in our integrated packages feature.

While I was looking through the last few years of *YC* to get a feel for industry trends as background to our PC of the Year awards, what struck me is how there has not really been a landmark year since 1984. That was the year that gave us the IBM AT, the first Macintosh, the Apple IIc, Data General's DG/One laptop, the LaserJet, the 68020, Lotus Symphony and Framework; the year Satellite Software released WordPerfect, Commodore bought Amiga, Jack Tramiel bought Atari, Visicorp disappeared after a merger with Paladin, and Lotus had its first flop with Jazz.

After that list, you can understand why I'm bemoaning the lack of development five years on – it would be impossible to write a similar list for any year since then. □

Future Features

IN ADDITION to our application stories, news and other informative pieces, each month we present features designed to keep you informed about the world of personal computing –

December 1990
Integrated software and ***accounting packages.***

January 1991
Personal Computer of the Year Finalists and ***multi-user operating systems.***

February 1991
Personal Computer of the Year – the Winners and ***portable solutions.***

Application stories – particularly those with the same theme as our features – are always welcome. Material must be received at least eight weeks prior to the month of intended publication. Please address editorial enquiries on our features to Mark Cheeseman, (02) 693 6143, and advertising enquiries to Mark Wilde, (02) 693 6646.

HOWARD KARTEN

On multimedia

WHEN I FIRST heard about multimedia, my first thought was that it was just more of the same hype from the usual suspects.

Now that I've thought about it, though, I am convinced that not only is this 'multimedia' stuff for real, but that, if allowed to develop properly, it has incredible potential. It's entirely possible that we may be witnessing, today, the beginnings of something truly revolutionary, which will have some really profound effects on almost every aspect of society in the future.

A couple of things led me to this conclusion. For one thing, I happened recently to come across an old, allegedly Confucian proverb which observed, 'Tell me and I'll forget, show me and I may remember, involve me and I'll learn.'

Somehow, my hypertext wetware jumped from this to a related proverb, this one exclusive to the surgery business, which neatly encapsulates the wisdom of the medical apprenticeship system: 'See one, do one, teach one, kill one.' Then, I recalled a recent birthday present from Ms Computer Writer, when we wound up playing Doctor. Yes, I know this is a family magazine, so it's not the kind of 'playing doctor' you may think. Ms CW bought me a Mac software game called Life and Death.

It's an intriguing, engaging game, and, of course, by no means the first application of this type to medicine. Various kinds of computer-aided simulations of medicine have been around for some years, particularly on the Mac. Before that, 'experience simulators' have been around for some time through other technology. At the Massachusetts Institute of Technology, the well-known Media Lab has been 'wowing' visitors for years with a now-famous demo.

Experience simulator

THIS DEMO IS a 'drive through Aspen, Colorado'. A video camera in a car recorded all the possible turns in town onto a laser video disk, in at least two seasons. The 'driver' can pick what season he wishes to see Aspen in, and can decide where and when to turn. When the 'driver' makes his choice via a keyboard, the pickup on the laser disk has been programmed to jump to the appropriate spot on the disk. Of course, this technology is not especially speedy, so there is a noticeable interruption as the disk is searched for the proper continuation scene.

Now take this one or two steps further. Imagine something practical, such as medical training involving a choice of scalpels or emergency-room techniques, and imagine that all the responses to the 'Doctor's' choices can be retrieved in near-real time (say, from a large mainframe memory, or from a very fast disk). So, for example, if the physician-in-training chooses the wrong technique, the 'patient' goes into cardiac arrest.

'Tell me and I'll forget, show me and I may remember, involve me and I'll learn.'

Pilots have been trained this way for years, on hardware that's been hideously expensive. Why not doctors? For that matter, why stop at physicians and pilots? Multimedia, properly done (and that's the operative phrase), could make learning really come alive for kids.

Here's one of my favorite examples of how learning can and should be improved. In America, kids in elementary school – 11, 12 years old or so – learn about George Westinghouse's invention of the airbrake. Ask anyone who's not an engineer what George Westinghouse did, and if they do happen to remember, the reply is 'he invented the airbrake.' But if you ask what the airbrake is, what its significance is, that's a different story altogether. No one remembers because it's simply a phrase. There may be a picture in a textbook, but if so, it's static – there's nothing to illustrate vividly that the airbrake is a fail-safe device. Imagine the impact you could obtain from being able to call up to the screen an appropriately-filmed slow-motion demonstration of, say, cutting an air hose!

Here's a similar idea: suppose the purchase price of the book included access to a central computer somewhere, containing (digitised) video and audio and from which the buyer could select material to illustrate the points in the book. Suppose, further, you could manipulate that material as well: change the 'shape' or sound of a letter, for instance.

Look at this, too, from a marketing point of view, which is really one of the keys to this whole thing. Suppose that I had to provide my address in some way in order to get access to the computer. That might offer a very nice marketing opportunity for the book's publisher.

When, and if, multimedia takes off, it may also foment a revolution in audio and video equipment. In the US, at least, record companies are trying to kill off phonograph records in favor of CDs, and, probably soon, digital audio tape. It doesn't take a genius to see how the computer is a natural adjunct to home video and equipment – and that some vendor will find a clever way to integrate the computer with audio equipment.

And think about what all this is going to do to computers! If, in fact, multimedia catches on, it could well make almost all current computers obsolete!

Think, too, about how this will dovetail with developments like fiber optics. Communications companies are talking about 'fiber to the curb', which would mean you could receive material far faster than the current maximum of 9600 baud over conventional lines. Faster speed would mean you might be able to dial up a library of video or audio material! It really expands the meaning of the term 'database'.

The future for multimedia software is so promising, I think that in future years we will look back at today's efforts to imagine the future of multimedia, and laugh that they were so primitive and showed such poverty of imagination. □

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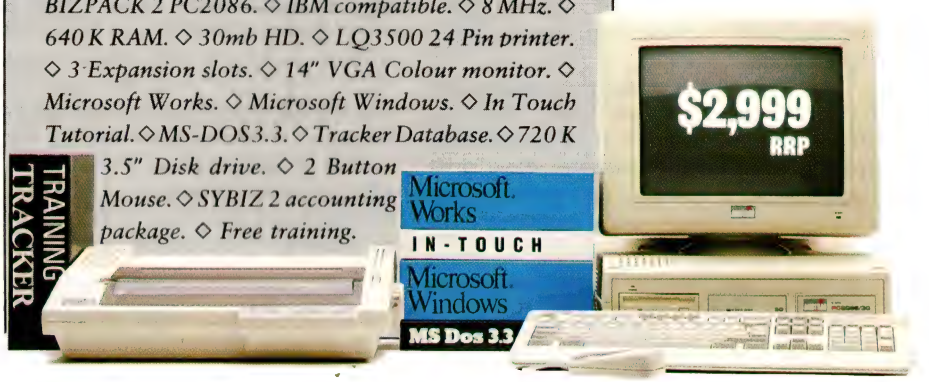

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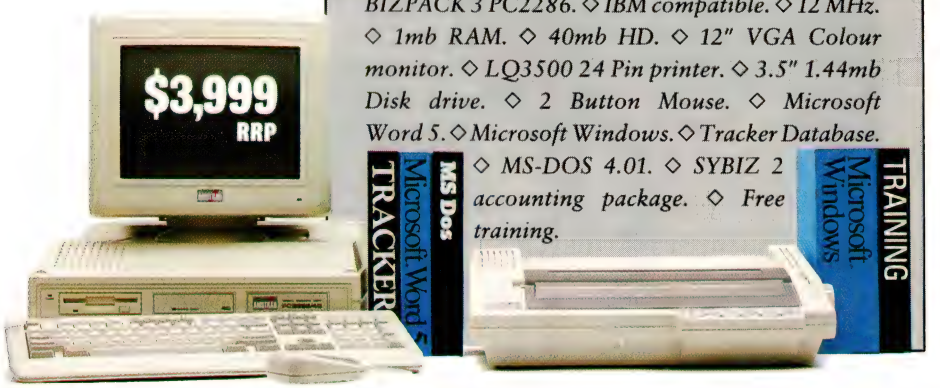

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SAATCHI'S AC157 GEN

BILL OLSON

Copyright legislation

PROBLEMS WITH software copyright legislation are again being spotlighted by the Copyright Law Review Committee. With the same opposing sides as for past reviews, it seems to be the computer and software companies versus the rest. Also, as usual, technology advances look like overtaking any proposed legislation.

Decus chairman Gordon Brimble explained that the theme for this year's symposium was Gateways to the World, a slogan designed to draw attention to DecNet Phase V. Unfortunately it was not released on schedule (just prior to the symposium), but communication was still the focus of this year's event.

There were software copyright reviews in 1984, 1986 and 1988 with the legislation changing each time to cope with past events. Computer software copyright requirements seem mismatched to our legal system, where cases are largely judged on what has happened before. Computer technology is advancing so quickly that anything set in legislation this year may be irrelevant next year.

A glance at the current submissions suggest parallel importing is still upsetting software dealers. Parallel importing is when you refuse to pay $2,990 locally for a software package you have seen advertised in a US magazine for only $695, and decide to go into business importing the product yourself.

Apple and Microsoft have both presented lengthy submissions about parallel importing of software and why it should still not be allowed.

Sometimes called grey marketing, parallel importing would not exist if official Australian software agents charged lower prices. High local costs are only justified because companies say they must provide software support services. However, not all software buyers want or need support services. In any case, US companies offering software support still charge much lower prices.

Amongst all the material submitted so far to the Copyright Law Review Committee, there is no mention of guaranteed performance for the software user. Computer software has a patchy record for actually doing what it says it will do on the box.

Software companies have convinced many of their customers that it is quite normal for a program not to work correctly first time around. You need to wait for version 1.3 or 1.4 before all of the bugs are ironed out.

This tricky approach would not be tolerated in most other industries. Imagine buying a car with an engine that coughed and spluttered for the first six months and the dealer said there would be an upgraded engine available next year. They will fit the upgraded engine only if you agree to pay extra.

Software marketing and copyright problems in Australia are really a side issue when compared with that of guaranteed product performance and consumer rights. The Trade Practices Commission seems a more appropriate authority to investigate the software business in Australia. The Commission has already shown its willingness to prosecute multi-national companies such as Sony and Commodore, for resale price maintenance of electronic

The hit of DecWorld was a voice operated graphics terminal called Diddly. David Wecker (pictured), who worked on the project, noted that the compression techniques used gave colour pictures that only used 45K.

equipment. A similar approach to computer software suppliers might lead to better value for money for the consumer.

Decus convention in Canberra

DEC USERS descended on Canberra during budget week to visit the DecWorld exhibition and swap papers at one of Australia's largest computer user conventions.

An estimated 1150 delegates took over the national capital's accommodation, leading one Decus delegate to remark that: 'We upset some other VIPs who were expecting somewhere nice to stay during budget week.'

Mike Whalen, chairman for Decus symposium planning, said that during the convention, members presented more than 260 seminar papers totalling over 250 hours: 'The top three areas for discussion were VAX, information systems and communications.'

There is a rumour that the Department of Administrative Services may not be producing another small systems list after the present PE40 expires in October '91.

Graphics interest was not as strong as last year, although Whalen said this was to be expected since in 1989 interest was high because DEC workstations were new to the market then.

Decus delegates agreed that the hit of the show was a voice operated graphics terminal called Diddly which received much general media attention as a novelty. However David Wecker, one of the scientists who worked on the project, said that two overlooked features of Diddly were; firstly, it was largely software driven on hardware available either now or in the next few months; and secondly, the compression techniques used meant the colour photos displayed by the demonstration program only used 45K of disk space and low resolution pictures could be compressed to 15K.

Wecker said the Diddly demonstration also showed that Digital could be innovative and serious about graphics systems. He said the Diddly software was completed in six weeks. All the spoken commands to the computer are prefixed with the command word Diddly. The computer is not voice restrictive and has a memory of 1000 voices on board. A scrolling window allows the user to call up different programs and windows with a number. For instance 'Diddly open five,' gives you window number five on screen.

In 1991 Decus will be going to Auckland, New Zealand.

New government buyers guide

RICHARD MAY, publisher of a PE40 government contract buyers guide, launched his new publication recently. The guide tells government purchasing officers everything they need to know about buying small computer systems and add-ons in a company by company list. Even though this is the first such guide to be published, it could be the last in this form if government purchasing policies are changed. There is a rumour that the Department of Administrative Services may not be producing another small systems list after the present PE40 expires in October '91.

Public privacy

THREE GOVERNMENT departments have been given orders to tighten up their security by the privacy commissioner Kevin O'Conner. The complaints were directed at the microfiche slides used by Customs, Immigration and Foreign Affairs. The commissioner's report investigated allegations that these three departments had been trading microfiche information over the last ten years about passports, international travel documents, electoral information and bankruptcy records. This information had been supposedly made available to private investigators, banks and credit reference agencies. The public servants involved had not done this for money the commissioner concluded, but for payment in kind.

One of the documents involved was the Customs Department's temporary passenger movement microfiche which has information about all passengers travelling in and out of Australia. Another document held by the passport office is the person alert microfiche which has details of any person who might try to leave Australia while still under investigation.

The commissioner was convinced that there was a real danger security breaches have occurred and inappropriate parties were receiving private information. □

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INDUSTRY UPDATES

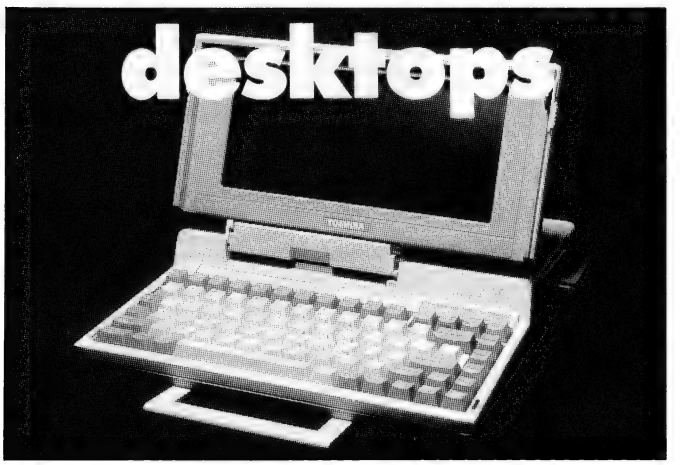
'Industry Updates' is sourced from the Newsbytes Network, the largest independent computer industry news service in the world.

Electronic Yellow Pages service

TELECOM AUSTRALIA has added electronic *Yellow Pages* directories to its dial-up service Discovery. Sydney, Melbourne and Brisbane directories are now available, and all other capital cities are to be on-line by year-end.

The *White Pages* have been available for some months, though the potential user base is only in the tens of thousands at the moment. A spokesperson told Newsbytes that the data-retrieval system (developed locally by Praxa) had a guaranteed response time for searches, of less than two seconds. □

Laptops outsell desktops



In the second quarter of 1990, almost 51 per cent of PCs sold in Japan were laptops, and 60 to 70 per cent of those were notebooks.

LAPTOP COMPUTERS, including notebook-sized computers, are replacing desktop machines in the Japanese personal computer market. According to a sales survey conducted by Japan Electronic Industry Development Association, for the April through June time period, laptops made up more than 50 per cent of total computer sales for the first time, grasping 51 per cent of all sales – a 13 point increase over the same term last year.

Some 644,000 PCs were shipped during that term, a 15 per cent increase over last year. The number of laptop computers was 327,000 units, an 86 per cent surge compared to last year. Among laptop shipments, 60 to 70 per cent were notebooks. Some 317,000 desktops, meanwhile, were shipped, an 18 point decrease over the previous term.

The notebook computer market is now dominated by NEC and Toshiba, but other computer makers such as Hitachi, Matsushita Electric Industrial, Mitsubishi Electric, and Sony are expected to enter later this year. A larger demand for the machines is, therefore, anticipated, so the association firmly expects that the laptop will beat the desktop in total annual shipments for the first time this year. □

Criticism of 'hacker challenge'

GAIL THACKERAY, assistant Arizona attorney general and John Perry Barlow, co-founder of the Electronic Frontier Foundation (EFF), in interviews with Newsbytes, strongly criticised the promotion by LeeMah DataCom Security Corporation, which challenged hackers to attempt to break into their security system.

The company stored a secret message in personal computers located in the New York and San Francisco offices of the accounting firm Coopers & Lybrand which oversaw the contest. The first person to gain access to the message was to be awarded a vacation for two to Tahiti or San Moritz, Switzerland. LeeMah DataCom provides security systems and the contest, according to LeeMah President John Tuomy, was to show that computer systems can be secured: 'We want to show the world that hackers can be beaten.'

Thackeray told Newsbytes: 'It's irresponsible and gives hackers some justification for their claim that what they are doing is good for society.' Barlow commented: 'And, for the 1994 Olympics, medals in safe-cracking and embezzlement. It is clearly in the commercial interest of DataCom to mythologise crackers, but I don't believe that the public is well served by this sort of thing.'

Other criticism was voiced by Ian Murphy, a Philadelphia security expert and self-described hacker known as Captain Zap. Murphy was quoted as saying: 'One problem you have with this contest is that they are advocating tele-crime. Hackers don't pay phone bills.' Murphy's comments relate to frequent charges that hackers avoid paying telephone charges by using credit card numbers found on bulletin boards.

Tuomy was also quoted as saying that he did not hear any reports of credit card abuse relating to last year's contest and he assumed that LeeMah would have been notified by the telephone company had such things occurred.

Leemah Datacom Security Corporation noted that 2,009 hackers tried to break into the secure system during the two-week contest which was held in September. None succeeded.

LeeMah's TraqNet/Infokey system uses a combination of technologies with an algorithm to secure systems. The odds against hacker penetration of all three of the system's security levels was one in 72 quadrillion, according to LeeMah. The hackers had to obtain a secret message stored in the system which read, 'The persistent hunter who wins his prize, sooner or later becomes the hunted.' □

Handheld PCs for Set Technologies

AUSTRALIAN SOFTWARE developer Set Technologies has developed a method of using handheld computers to collect time and billing details from staff. TOM (The Office Manager) runs on the Psion Organiser palmtop PC.

The program records and controls data on appointments, meetings, correspondence, phone calls and faxes, and the information is periodically downloaded to a desktop PC for collation. The desktop then produces detailed or summary client reports as required. TOM is being marketed in Australia by Remington Pitney Bowes. □

Philips buys into Imagineering

PHILIPS, THE Dutch electronics giant, has bought into troubled Australian PC distributor Imagineering, as part of a rationalising of Philips' computer division.

Imagineering will take-over a section of Philips' service and support division, and around 100 Philips staff will be retrenched or re-located. Philips' PCs have had difficulty in the Australian marketplace, which is oversupplied with brands, models and dealers. A spokesperson said that the deal with Imagineering did not indicate problems but was part of a company-wide realignment. □

The third dimension

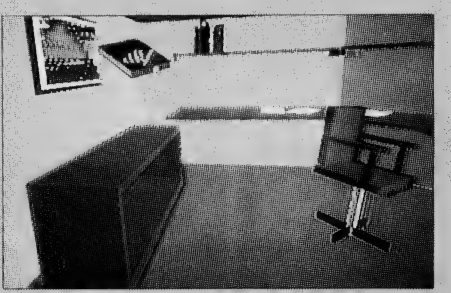
THE THIRD dimension was what really turned people on at the third Autodesk Expo, held in Melbourne in August. Some 1200 AutoCAD enthusiasts descended on the World Trade Centre to catch up on the latest products, look for things to enhance their CAD systems and meet fellow users. Associated with the Autodesk exhibition was a three day conference with the theme of Modelling the Real World. Five hundred users bought tickets to hear senior Autodesk staff expound on future product strategies, users explain how they worked with products and industry experts reveal what was really happening in the world of CAD.

A popular discussion session was one where users were able to suggest product improvements to Autodesk executives. Other discussions centred on CAD standards, networking in an AutoCAD environment, presentation graphics and emerging technologies. The papers presented included a description of Autodesk's revolutionary Cyberspace concept, a paper on how expert systems and CAD are being woven together and an exposition on the Chaos Theory in weather forecasting.

The lecture on chaos was by Dr Lance Leslie of the Bureau of Meteorology. The Bureau has just bought a Cray supercomputer to model the weather, but is using AutoCAD to predict the path of tropical cyclones and gauge the level of damage they may cause. The 25 workshops covered a wide range of subjects, from a briefing on the latest release of AutoCAD, release 11, demonstration by vendors supplying to the CAD community, sessions on AutoCAD techniques and guidance on introductions to areas such as database design, Lisp and geographic information systems.

Thirty three vendors, from user groups to dealers to peripheral suppliers took stands at the exhibition. Autodesk, naturally, held centre stage and used the venue to show off latest releases – Release 11 of AutoCAD, Generic 3D version 1.1, Clips for Animator and Autosketch 3.0. But the undoubted hit of the show was Cyberspace, which even earned a guernsey on Beyond 2000 the week after the show. Dr George Krucik, Technical Manager of Autodesk's International Liaison Group explained the idea behind Cyberspace in a lecture oxymoronically entitled Virtual Reality.

'Cyberspace is a computer generated three dimensional world, where the participant may interact with created objects as if they were real,' he told his audience. To create Cyberspace, Autodesk uses a '386 PC with two graphics cards, a stereoscopic viewer made of the LCD screens from two Sony Watchmans, position trackers and a motion sensitive DataGlove. The hardware is derived from the space race, where it was used to help astronauts repair spacecraft. Combine this with 3D images from AutoCAD and an application generator, the Cyberspace Toolkit, and you have the means to create a new type of computing experience.



The Cyberspace demonstration has users entering a three dimensional world with an office, some furniture and a door to a swimming pool. The scene was viewed through the goggles and the viewpoint varied as the head moved. Movement within the scene was by pointing with a finger, while clenching the fist enabled an object to be picked up.

Autodesk has integrated other input devices such as trackballs, steering wheels, even an exercise bicycle, into the Cyberspace environment. There is a long list of possible applications. For instance, a kitchen designer might design a kitchen on screen and then let the customer walk through or an architect might design a building and have the client explore it at will. With an exercise bicycle, Cyberspace can show passing landscape, so the user can get a feel for the outdoors without risking a chill.

As yet, Cyberspace is purely experimental, but Autodesk is confident that it will not be too long before the hardware and software is on general sale. 'There are two main limitations which slow the development of commercial applications for Cyberspace,' said Krucik. 'A monitor that fully exploits our visual acuity has not yet been developed. Updating 48Mb of visual data 30 times per second is a formidable hardware challenge. The processor speed and memory capacity required to present such images in real time on the desktop are also not yet available. 'The other limitation facing Cyberspace's future is that the pointing devices and tactile feedback gloves needed to operate the system are still in early stages of development,' he said.

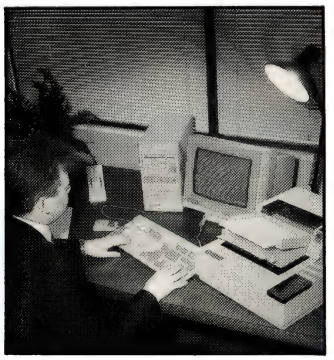
Back in the real world, AutoCAD Release 11 attracted plenty of attention. Priced at $5875, its major new feature is called AutoCAD Development System (ADS), which lets AutoCAD work interactively with external databases spreadsheets, and C programs. Other new features are multiple view plotting, reference drawings that can be attached to active drawings, file locking, drawing recovery routines, improved dimensioning features, better dialogue boxes, a contextual help facility and the means for users to assign their own aliases to AutoCAD commands.

Clips – collections of animated clip art – for Animator attracted attention too. Animator is Autodesk's stunning multimedia presentation package. For the Animator user who does not feel comfortable drawing, they are guaranteed to give a professional presentation.

For most attendees, the keynote was a peek into the future of Autodesk from Dr Malcolm Davies, vice president, sales and marketing. He denied rumours that a 2D-only version of AutoCAD was being developed. Instead, modules that added functionality to the 3D product would be way of the future. Features to come include 3D graphics enhancements from Ithaca Software, parametric design functions from D-Cubed and geometric modelling from Spatial Technology.

Windows 3 and IBM RS/6000 ports of AutoCAD were a matter for the future too, and dependent on the success of these environments. A new version of AutoShade, incorporating Pixar's photorealistic Renderman technology, is due in late 1991. Also coming is Gencadd, a series of integrated applications that link the Generic and AutoCAD environments. The first release is an office layout and design package. It will be followed by architectural and geographic information system packages. The next Autodesk Expo is scheduled for Sydney in 1992.

No time for managing



A US study has shown that the proliferation of computer equipment on a manager's desk means that as little as 25 per cent of the day is devoted to 'management'.

THE PROLIFERATION of personal computers on managers' desks has turned too many of them into clerks, leaving too little time for managing, according to Georgia Tech economist Dr Peter Sassone. He said his studies of 1563 employees in 77 offices representing four *Fortune* 1000 companies showed that a sample of middle-level managers were spending only 25 per cent of their time managing, but a third of their time on support tasks and other non-productive activities.

Sassone said many companies can dramatically increase productivity and profits by rethinking staff requirements, redefining job responsibilities, and taking full advantage of information technology. The key, he said, is to give managers enough of a support staff so they can get out of their offices and get back onto the shop floor. □

Hitachi to market AX PCs

HITACHI WILL introduce personal computers based on the AX standard in April, next year. Hitachi was a long-time holding-out in the emerging Japanese IBM-compatible standard, preferring to stick with its own proprietary operating system. However, the company bowed to popular demand and joined the AX group in April, this year.

The AX standard supports both English and Japanese languages and is compatible with the IBM PC/AT. The standard was specified at the AX conference, organised in October, 1987, by an alliance of 19 firms, including Epson, Microsoft, Mitsubishi, Sanyo, and Sharp. The 19 were united against a common goal: the domination of Japanese personal computer giant NEC.

According to an Hitachi official, a full lineup of personal computers from 32-bit machines to book-sized lower end computers, including a machine with a color LCD planned. Hitachi will also develop software compatible to both its B series personal computer, its independent architectured machine, and the AX machine, in order to encourage users to make a smooth transition. □

Schools ignore guidelines

A NETWORK OF 10 high schools east of Melbourne have gone against state Department of Education guidelines, by calling for and awarding tenders for the supply of computer systems.

The move came about as a result of the schools not being totally satisfied with the suppliers recommended by the Department. After calling for tenders from all suppliers, including the recommended ones, a group comprised of principals, teachers and parents, compiled a short list, then chose the 'finalist' on price competitiveness, credibility of service, and whether it was felt the company would be around for any the schools' future needs.

Although not condemning the move, a spokesman for the Department said that by going against Department guidelines, the schools could not expect the Computer Education Unit of the Department to act as consultants on the schools' behalf. □

Change of strategy for HP

HP SAYS it is changing its strategy within its Engineering Applications Group (EAG) to focus software development on the mechanical-engineering and data-management markets and phase out development of HP's proprietary electronic-design-automation (EDA) software.

HP says Mechanical Design Division (MDD), which creates applications for mechanical computer-aided-design (ME-CAD) and product-information management, will operate as an independent software division, effective immediately.

It will have a dedicated sales force and will be free to make its products available on any hardware platform, HP says. The division's software is available today on Intel 386- and 486-based computers that use the MS-Dos operating system in addition to the HP workstation family. The Electronic Design Division (EDD), following a new release of EDA software, will undergo a two-year transition away from developing its proprietary EDA software in favour of strengthening relationships with third-party companies.

HP says the transition will mean lay-offs at the 165-person EDD, which is based in Fort Collins and has operations in Colorado Springs, Colorado. the company also said the announcement reflects the momentum of the open- systems movement, a computer-industry trend of which HP is one of the industry's most aggressive proponents.

'Our customers are making separate buying decisions for hardware and software,' said William G Parzybok, HP vice president and general manager of EAG. 'They want software that runs on multiple types of hardware as well as industry-standard hardware that operates in networks of different types of computers.'

MDD, based in Boeblingen, West Germany, has operations in Fort Collins, Colorado, and will continue focusing on ME-CAD and product-information-management software.

Meanwhile, Hewlett Packard has been warned by the Australian government that the closing of its Australian Software Organisation breaches the Partnerships for Development Program (PDP) agreement HP signed in February, 1988. PDP is a program whereby companies enter an agreement with the government to develop exports and research programs for their Australian operations. The terms of the HP agreement called for $21.1M expenditure per year on research and development and $78M worth of exports a year by 1994.

The government feels that the closing of the Software Organisation will make it very difficult for HP to meet these requirements. As a result, the government may cancel the PDP agreement with HP. The company disputes the claims, however, and feel that the remaining operations in Australia will cover its commitments to the PDP. The company is also expected to investigate ventures which should ensure the R&D requirements are met. □

Increased attendance for PC90 show

DESPITE A downturn in the local computer industry, this year's Melbourne PC90 show's attendance was up 14 per cent on last year's figures. This compares to an 11 per cent increase on last year's figures for the Sydney PC90 show.

With 201 exhibitors, the Melbourne show attracted 26,962 visitors

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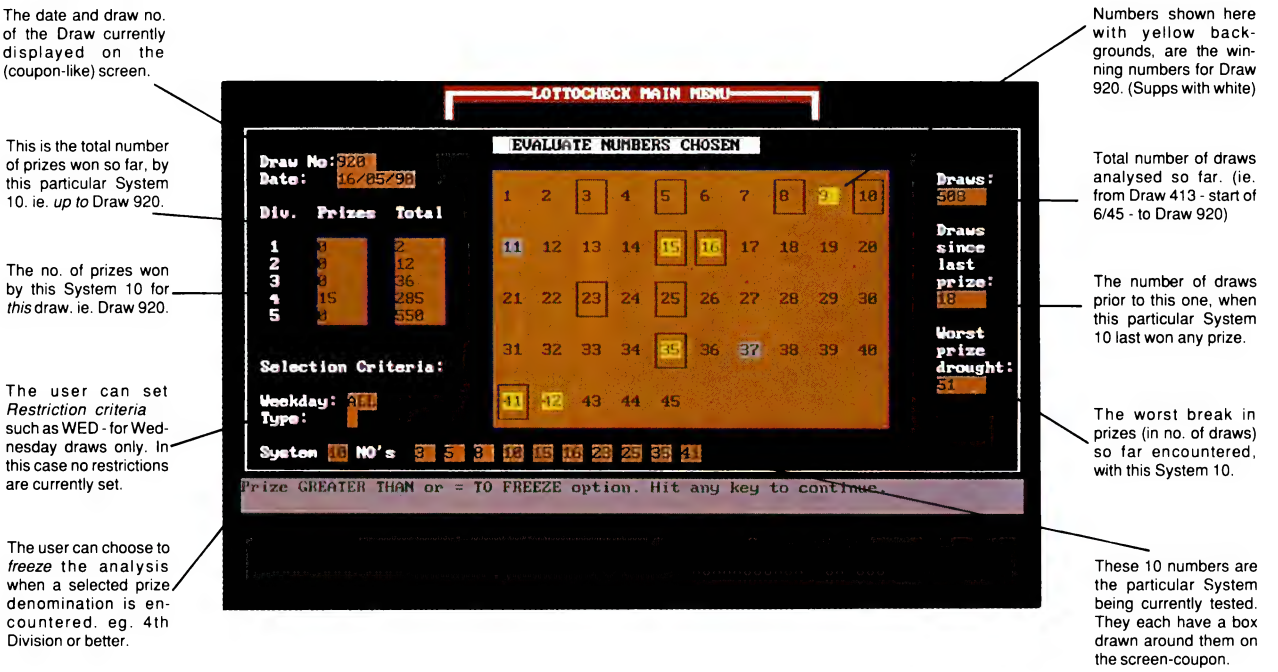

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(Sydney had 192 exhibitors and 31,845 visitors). Managing director of Australian Exhibition Services, the exhibition holders, Graeme Selby said, 'The information technology industry has demonstrated, by promoting the benefits of the latest technology and marketing in a positive manner, that people are still willing and able to spend money on computers and related equipment. It is a lesson to less effective industries on how to market their products in a difficult economic climate.' □

Arche Technologies shakeout

'The accounts computer was always broken when an audit was done' – Peter Connolly, the newly appointed manager of financially troubled Arche Technologies.

ARCHE TECHNOLOGIES, Australian distributor of Arche PCs, says it will trade out of the trouble it found itself in after the first 18 months of trading. The problems include a $1.3M operating loss, $650K owed by creditors 'who refuse to pay' and $300K in 'missing' stock.

Six employees, including the manager, were asked to leave last week. The new manager, Peter Connolly, said that the ex-staff were believed responsible for milking the company of PCs and selling these privately. 'Not only that, but there were no reports going back to headquarters in Taiwan and the accounts computer was always broken when an audit was done.'

Connolly told Newsbytes that he was reacting to the tight market, using methods learned during his time working with Arche in New Zealand. 'That has to be the most competitive market for PCs in the world. Almost no one sells through dealers as the margins are just too small. The only way around that, was to be one of the few suppliers offering service and that's what we'll do to get sales going again in Australia.' □

Compaq cracks!

Compaq is currently investigating the cause of hairline cracks appearing in LTE and LTE 386 notebooks.

COMPAQ COMPUTER Corporation is extending the warranty on the plastic cases housing its LTE and LTE 386 notebook computers after many of them have developed hairline cracks. The problem 'is not widespread,' according to Compaq spokeswoman Debra Globe, although the company admits it does not know how many are broken. They were first alerted to the problem by dealers. She could not say exactly what portion of the case was most likely to develop the cracks.

The company is currently investigating the cause of the tiny fissures, but it hasn't been obvious. 'It's pretty complex,' she told Newsbytes. She said Compaq is looking into a replacement for the plastic used in the casing. Dealers are offering owners of the cracked LTEs a one-year extension on the warranty covering damage to the plastic case.

Battery-powered CD-ROMs

TANDY-OWNED GRID Computer Systems has announced the first commercially-available battery-powered CD-Rom drive for laptop computers in the UK. The unit clips to any Grid laptop, although the company recommends it for use with the '386-based Model 1530.

As with all Grid kits on sale, the company remains coy on pricing, as systems are usually sold as a combination of hardware and software. Due to a public holiday in the UK, Newsbytes was unable to verify any component pricing.

The two inch high drive unit clips on to most Grid laptops piggy-back style. The unit reads industry-standard 550Mb CD-ROM disks, with a typical access time of 400 milliseconds, and a data transfer rate of 150K/second. □

Success for Micro Computer System

AN EXECUTIVE of a Moscow-based, fast-growing, PC clone manufacturer that is becoming one of the USSR's biggest local PC producers, explained how the company attained such growth within only one year. 'Our company, named MicroComputerSystem was founded in March, 1989, by several Soviet companies along with two West German firms, Tebimpex GmbH and Aquarius Systems International GmbH. Our original executives spent half a year doing almost nothing, but enjoying numerous trips abroad while showing no profits at all. After that, our German partners insisted that we replace almost all of these executives with new younger people and change the company name to Aquarius Systems Integral (ASI). After that, our business started to grow,' Igor Moguchev, ASI marketing director told Newsbytes.

'Our main goal was to set up a PC factory here,' he said. 'We've been trying to find factory space in the Moscow area but have been unsuccessful. When the managers, of what was formerly a military factory in Shuya city, one that had lost its military contracts as a result of conversion, called us and offered their premises, we started to develop very fast.'

Shuya is a tiny 400-year-old city of 80,000 people close to Ivanowo,

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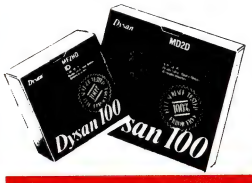

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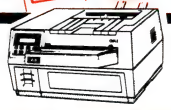

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SPECIFICATIONS:
Printer Type:
LED laser printer
Printing speed: 8 page/minute
Warm up time: 45 seconds
Resolution: Max 300 x 300 dots/inch
Automatic paper feed
Standard: 200 sheets
Option: a futher 200 sheets
Paper formats (automatic feed): A4, A5, A6, B5 (weight 60-90g/m2)
Manual paper feed :
Envelopes, Self-adheeive labels
Overhead transperancies
Typefaces
38 font (with HP emultion)
8-14.4 points
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Interface:
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The OKI Microline 391 is a result of a combination of the very latest technology and OKI's many years of experience. The OKI 391 provides exceptional paper handling and professional quality print whilst being extreamly quiet. The foil-covered touch keys on the control panel are clearly lit to avoid confusion. The OKI 391 can print up to 270 characters a second and 90 characters a second at letter quality. The OKI 391 also has enormous paper handling versitility. The bidirectional push tractor is standard in the OKI 391, as is automatic single sheet feed. The paper handling features are numerous making this printer one of the capable on the market.

SPECIFICATIONS:
PRINTER MECHANISM:
Printer method: Dot matrix
Print head: 24 pins (diameter 0.2)
Head operating life: 200 Million characters
PRINTER SPEED:
Data: 270 cps (12cpi)
processing: 225 cps (10cpi)
Letter: 90 cps (12cpi)
quality: 75 cps (10cpi)
Characters per line:
10 cpi 136
12 cpi 163
15 cpi 204
17.1 cpi 233
20 cpi 272
PRINTER CHARACTERISTICS:
Typefaces
Standard: Courier, High Speed
Insert Cards: Letter Gothic, Prestige Elite
Software Input: up to 256 characters as required
Fonts: 18 national fonts, IBM I and II, Epson, Semi- Graphic.
Buffer: 4€ K Bytes.

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the area's centre, which is 250 kilometers northeast of Moscow.

'Before they lost their military contracts, they had started to build a new factory building which became obsolete as a result of conversion. We agreed to finance it and use it as our main base. The Germans also found it very suitable. We've got a complete production line from Taiwan and a quality control system from Germany.' □

No low-radiation monitors

AUSTRALIAN environmental safety groups are angered by computer companies that have decided not to supply low radiation monitors to the Australian market. Both DEC and IBM now supply low-radiation cathode-ray tube (CRT) monitors in the US as a result of consumer pressure.

Neither DEC nor IBM plan to sell the safer screens in Australia, saying that the market was too small and the demand not sufficient to warrant the extra expense of adding new product lines. IBM told Newsbytes that it was yet to be convinced that there were significant dangers, and only supplied the new monitors in North America and Europe due to stronger customer demand.

Many third-party suppliers have low-radiation monitors, but say they cannot compete on price and cannot convince the big suppliers to bundle their product. They also complain that they have no direct access to government tenders, relying instead on hand-outs from the larger vendors, despite the safety advantages they believe their products give.

Apple Australia has been exceptionally active in down-playing the comments on the safety of its products made by the US trade press. □

Big contract for Wang Australia

WANG HAS won a US$840M contract to supply computer and communications equipment to the US Department of State, and sources inside the company say that as much as 20 per cent of the product may be manufactured in Australia.

The contract covers Wang VS systems, workstations and PCs, as well as networking and communications hardware and custom-designed software. The Canberra Wang plant is the only one which produces the NetMux 28 system used to connect VS computers and workstations. It is also the only source of other ranges of system boards and modems.

Wang's Australian communications director said he believed that much of the contract would be sourced here because of Wang's commitment to distributed manufacture and development. □

Borland ships Paradox V 3.5

BORLAND IS offering the latest version of Paradox, its database management system, as well as Paradox SQL Link, a separate program, enabling users to access data from a variety of different types of computers.

Paradox 3.5 works with Paradox SQL Link to allow users to access remote SQL data without learning complex SQL programming. SQL (Structured Query Language) is the industry-standard data language for relational databases residing on minicomputers, mainframes or PC database servers.

Borland claims that Paradox with SQL Link connects to more data servers than any other microcomputer database management system. Paradox 3.5 also shares data with Quattro Pro, SideKick for Presentation Manager and C applications developed with the Paradox Engine. Paradox also imports and exports Ashton-Tate dBase files. Version 2.0 of Quattro Pro, scheduled for shipment later this year, will include enhanced links to Paradox, according to Borland.

Database of Aboriginal art

THE UNIVERSITY of Melbourne's Surveying and Land Information Department has established a database of Aboriginal rock art from sites in northern Queensland. Incorporating contour maps of areas of archaeological sites, textual information pertaining to the site and photographic images of rock art at the sites, the database is based on Intergraph's Imager and Microstation design software, in conjunction with an Informix relational database working on an Intergraph Interpro Unix workstation.

The topographical information was provided by the Australian Army, which already had it in Intergraph format, and the textual information was converted from a Macintosh via dBase III+. As most of the information was in a form readily integrated into the system, the setting-up of the database took only two weeks. A similar project is being run by the Department in the New Britain area of Papua New Guinea in conjunction with La Trobe University's department of Prehistory and the Australian Museum. □

Government accused of privacy infringement

THE AUSTRALIAN government plans to dust-off a system that will record and analyse prescriptions issued by pharmacists. This follows the scrapping a couple of years ago of a national ID card system which was seen as unacceptable by the Australian public.

The drug monitoring system is aimed at preventing pharmaceutical benefits fraud, estimated to costs tens of millions of dollars annually. Although the proposed system is not compulsory, the fact that specifications include a smart card reader and pin number pad suggest to many observers that the system will be tightened some time after introduction.

In a similar move, the government is adopting wider use of the tax-file number of all Australian tax payers, to track bank accounts, financial transactions and social services. This move is similarly suspected as being 'big- brotherish.'

New PC security system

AUSTRALIAN PC software developer Robust Software, (03) 615 6711, has developed what it believes is the only PC security system that can't be cracked. Its BlockIt runs alongside Dos to strictly limit what the PC user can do.

Developer Rod Stewart told Newsbytes his system, unlike all others, had no vulnerable period during boot-up and did not decrypt any of the hard disk during this stage. He claims a year's lead over the closest competitive products.

Already the product is a standard item on most new government department PCs and is starting to sell well into corporate sites. A number of international PC companies are reportedly looking at adding BlockIt to their catalogues.

User ID is mandatory with BlockIt and it produces a full audit trail, and controls access to keyboard, screen, disk drives and other peripherals. It can also be programmed to only allow certain types of file operations. □

TECH TIPS

If you have any technical advice or hints on using hardware and software that might interest others, drop us a line and we'll pass them on. If you have a PC problem that's been bugging you, send it in, and we'll try to help. Write to: ***Tech Tips, Your Computer, PO Box 199, Alexandria 2015 NSW.***

Edited by Mark Cheeseman

BIOS drive tables

I recently purchased a 90Mb IDE hard drive from a well known supplier. The supplier implied that adding the drive to my computer would be a simple procedure, but as I have found, this is far from being the case. The problem stems from an incompatibility between the drive's configuration and the drive types supported by the BIOS in my PC (an Epson AX2). All of the drive types in the BIOS table are for 17 sector drives, while the new IDE drive has 33 sectors. I could set up the drive using a drive type in the table with only 17 sectors, but ended up with a 40Mb drive instead of the 90 I paid for.

The supplier said that the drive could use sector translation, where a drive type from the BIOS table with a similar capacity is selected, and the drive's inbuilt controller translates the BIOS calls to the real positions on the disk. While this works, the speed, as reported by CoreTest, was about 30 per cent slower than before.

I contacted Epson with my problem, and their technical support people told me that they could supply a customised BIOS with the correct formula in one of the unused locations in the BIOS table. This is the option which I ultimately pursued, although the new BIOS cost me $90. It works extremely well. Is obtaining such a BIOS the only real way around this sort of problem, or is there another solution which I have missed?

J Rowe
Arncliffe, NSW

The situation you describe is not uncommon, with drives starting to appear on the market with capacities far in excess of those which were around when the computer BIOS' were written. The BIOS drive table consists of a number of fixed drive types, with pre-defined numbers of tracks, heads, and sectors. If the drive which you are adding to the computer matches one of these built-in formulas, then there is no problem. However, if they do not match, there are a number of possible solutions which can be used.

The incompatibility arises not only with IDE drives, but also SCSI and ESDI drives. Some controllers have their own drive table on-board, which replaces the system BIOS table, and is specifically designed to support drives compatible with that controller. One ESDI controller which passed through our offices recently supported 256 different drive types!

However, if the controller (which is actually part of the drive in an IDE configuration) does not have its own drive table, other solutions need to be sought.

OnTrack's Disk Manager program is one of the most popular of the software solutions, and is often shipped with non-standard drives. It allows large non-standard partitions to be defined on drives with track, head and sector counts different from those in the BIOS table.

A customised BIOS (such as you have obtained), is a more elegant solution, but you will need to go back to your dealer for this. Before going down this path, check to see if an updated BIOS is available which has the required drive parameters built in as one of the standard types.

A number of BIOS' also have a user-customisable drive type, which allows the relevant parameters to be entered from the setup program. Newer AMI and Phoenix BIOS' have this feature, but I am unsure whether Award BIOS' support it or not. With a user-defined drive type, the drive is selected from the setup program in the usual way, but then the individual parameters need to be entered into the table.

TIFF update

Further to Daniel Ford's analysis of 'TIFF-compatible' software in the September issue, we have subsequently tested *Corel Draw!*, version 1.2 with the same files, and found it to be compatible with all of them. So you can safely add this program to the list of true TIFF-compatibles. Oh yes, Corel Trace is also fully compatible.

Partitioning large drives

I am in the market for a drive of about 300Mb capacity, which I intend to use on my '386 under Dos 3.3. I do not want to upgrade to Dos 4.0 if at all possible, since it uses more memory than 3.3. However, a friend told me that you can only have four partitions on a physical hard disk, which means that I will only be able to use 128Mb of the space on the disk. I know some suppliers bundle a special version of Dos 3.3 with their machines, which allows large drives to appear as a single partition.

However, the Dos supplied with my machine is the bog-standard Microsoft product, which I understand cannot address partitions beyond 32Mb in size. Is there some way that I can address a 300Mb drive using standard Dos, or do I need one of those 'specials' that some suppliers have? I don't mind having 10 partitions on the disk, but I'm not too keen on spending money on a 300Mb drive if I can't even use half its capacity.

Glen Myers
Gladesville, NSW

Yes, Dos 3.3 can address a 300Mb hard disk, and use all of its capacity without waste. You appear to be a bit confused about the difference between disk partitions, and logical Dos drives. To address a hard disk of that size under Dos 3.3, you only need two partitions – a 32Mb primary Dos partition, and an *extended* Dos partition, using the remaining capacity of the drive. This is accomplished with the Dos Fdisk program.

Once the extended partition has been created, it then needs to be divided up into logical drives, again using Fdisk. The Dos 32Mb limit applies to the size of each

of these logical drives, not to the size of the extended partition.

So, with that in mind, you can easily set up any sized hard disk under Dos 3.3, provided that the total number of partitions does not exceed 24, since Dos can only address 26 logical drives, and logical Drives A and B are devoted to the floppy drive(s). There are other limits to the maximum size of a physical hard disk, but they are imposed by the BIOS – the most commonly-encountered being the 1024 cylinder limit.

Losing at Reversi

A favourite pastime of hackers in days gone by was to play one computer off against another, or against itself if it was a multi-user system, at a game which was nominally a human versus machine game. By making the computer make the first move on one computer or terminal, and then entering the computer's move on each machine as if it was the player's own on the other one, the computers, unbeknownst to each other, are in fact playing another machine, and not a human opponent at all.

With the multi-tasking capability of Windows (even pre-3.0 releases), and good old Reversi, one can play the computer against itself at any desired level. However, in the window in which the computer plays first, the computer always loses. At novice level, it loses by 20 points, but even when the computer in the first window is playing at expert level, the other window at novice level still beats it by two points!

The downside of disk doubling

The following note comes from the Computer Products Division of Nashua, and concerns the practice of 'doubling' 3.5 inch double-density disks, to allow them to store twice the amount of data:

There is a theory around the computer industry that to convert a 3.5 DD diskette into an HD, one only needs to punch a hole on the other bottom side of the shell. Not only does this give a risk of leaving debris in the diskette, but a more significant risk is being taken by the user, in that the loss of data will occur.

Claims are being made that DD and HD media is the same and that higher prices are being charged for no apparent gain. We wish to point out to the industry that this is not so, and many users are being misled. The following information is offered as an explanation and should any user wish to query us further, we would be happy to discuss this in more detail.

Diskettes manufactured for high density applications are referred to as 3.5 inch DSHD (double sided, high density), MF 2HD (micro floppy, high density) or 1.44Mb formatted. Magnetic coating thickness is typically 1.7 microns and double density drives have 1.7 micron head gaps which is appropriate for the 2559 to 8717 BPI densities of MFM encoding.

The read/write heads of double density drives can create powerful magnetic fields which fully penetrate the 1.7 micron coating. However, the magnetic field generated by the narrow head gap of a HD drive may not fully penetrate the DD coating, leading to poor saturation and associated performance problems. The field may also spread excessively in the thick coating, leading to excessive bit shift and data errors for high bit densities.

Initial results of testing were obtained using HD disks with an HD format in HD drive. As a result, amplitude performance was satisfactory. Resolution on track 79 was an acceptable 71 per cent at the Typical Operating Current of a stock drive and decreased to a marginal 60 per cent or less at higher write currents. Time Interval Analysis results were typical of good quality media and drives. Peak shift of the B6DB pattern is corrected by the drive controller during formatting, and the data bits of the formatted diskette are properly positioned in time. Window margins were 72 per cent or better, indicating that the disk should be readable with any good quality drive and controller.

When a DD disk was used with a HD format in the same HD drive, the results were very different. As a result, amplitude performance was unsatisfactory due to poor amplitude saturation. Resolution on Track 79 was an unacceptable 52 per cent at the Typical Operating Current. The time interval spectrum resembled that of MFM encoding but the peaks were excessively wide, leading to frequent read errors.

Tony Little
Nashua Australia

We've had our doubts about the reliability of formatting double density disks to high density ever since so-called disk doublers appeared on the market. It seems that be-

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cause people have had some success in reading disks which have been formatted in this way, it is acceptable practice to do so. Certainly, for non-critical applications, such as transferring data from one computer to another, they would not cause much of a problem – if the receiving computer cannot read the disk, just try again with another disk.

But for important tasks, such as backing up a hard disk, using such disks is just asking for trouble. If the computer is lost or damaged (through theft or fire, for example), the slightly different head alignment in the drive of a new computer could mean that the already weak data patterns on the disk are totally unreadable – making the backup useless. □

Of TSRs and memory allocation

I recently observed that one of my colleagues had a fundamental misunderstanding of the way in which memory is allocated and used. While this is not important for people who only use one program at a time, it may make a great deal of difference to people using TSRs, and programs that dynamically acquire memory.

The case in discussion involves ISYS, a text retrieval program. The UPDATE module, which maintains the indexes, can make use of all the memory that is available, improving performance. My colleague also had the query portion, IQ, resident as a TSR. This takes approximately 110K of memory. With this, and Dos, and network software, he had just under 400K of memory. When the UPDATE starts, it senses the presence of IQ as a TSR, and asks if you wish to continue. The sensible approach is to stop at this point, return to Dos, unload IQ and then run the UPDATE. IQ can be unloaded from the ISYS main menu, or by calling up the program and unloading from there. ISYS even includes a command line parameter to unload the TSR. However, my colleague was remaining in UPDATE, calling up the TSR, and unloading it.

What he failed to understand, is that the memory freed was not allocated to the UPDATE program. The accompanying diagrams illustrate what happened: UPDATE cannot access the memory below it.

The following three diagrams show the correct sequence of events. That is, unloading IQ at the Dos level, then running UPDATE. In this case, UPDATE is able to take advantage of the memory freed by unloading IQ. The extra 110K improved the speed with which the UPDATE completed, by about 10 per cent.

Inspired by this, I had a look at his environment. Despite the fact that he has a '386 with 2Mb of memory, he does not have an EMS driver installed. Most programs, ISYS included, do not make use of extended memory. We set up a controlled experiment, comparing UPDATE time on his machine, and mine, which is the same make, with 2Mb of memory and an EMS driver. On 'small' UPDATEs, less than 10 minutes, the difference is negligible. However, 'large' UPDATEs showed a 10 to 20 per cent improvement again. My colleague is a happy man. He is going to install an EMS driver, and has created a batch file that unloads IQ, and then runs UPDATE. These are the relevant lines –

```
IQ UNLOAD
IF ERRORLEVEL 1 GOTO BADIQ
IDB UPDATE
IF ERRORLEVEL 1 GOTO BADUP
ECHO UPDATE completed successfully. ReLOADing IQ
IQ LOAD
GOTO END
:BADIQ
ECHO Unsuccessful in UNLOADING IQ.
GOTO END
:BADUP
ECHO Failure in UPDATE.
:END
```

The moral of this tale is that you should be careful in your management of TSRs. Those that can be unloaded, should be installed last, and they should be unloaded from the Dos command line, rather than within application programs.

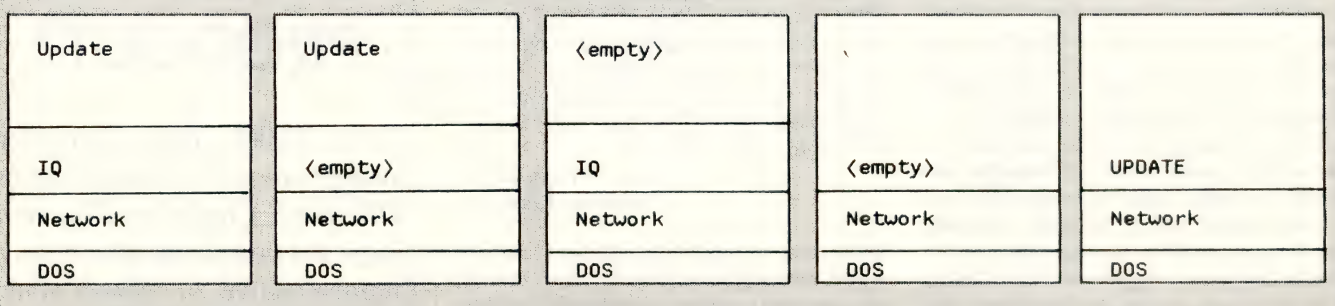
Tim Keech
Ivanhoe, Vic.

The above of course applies to any TSR program – if it is removed from memory, the memory which it occupied will not become available if other programs have been loaded into memory afterwards. This means any other TSR or application program, such as a Dos shell. Some TSRs will not allow you to unload them if something else has been loaded after it, others, however, will tell you they are unloaded, but there will be no change in the available memory.

SideKick is one of the worst-behaved programs ever created, and can prevent other programs being removed from memory even if the program in question has been loaded *after* SideKick. This is due to SideKick's grabbing the keyboard interrupt back from any other TSR which has subsequently taken control of it. When you try to remove the other TSR, the keyboard interrupt vector is pointing to SideKick, not to the other TSR, so it thinks that it wasn't the last thing to be loaded.

This behaviour causes no end of problems, and for that reason, it is best to load SideKick *after* any other TSRs. If you need to remove another TSR, load it before SideKick, and then unload SideKick, then the other TSR, and then re-load SideKick. A more convenient solution is to use programs such as the public-domain Mark and Release, which allow the removal of groups of TSRs automatically, using batch files.

When the IQ module of ISYS is unloaded, the memory freed is not allocated to the UPDATE program (this is typical of TSRs in general). These memory maps show what happened in the example described in the text –



1) UPDATE with IQ *2) IQ removed* *3) IQ loaded* *4) IQ removed* *5) Run UPDATE*

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The technology to combine multiple media offers an opportunity to develop presentations that are 'natural' – the flow of topics can be associative and the images and sounds used can be real. But Jake Kennedy discovered that such a simple concept has been a long time coming.

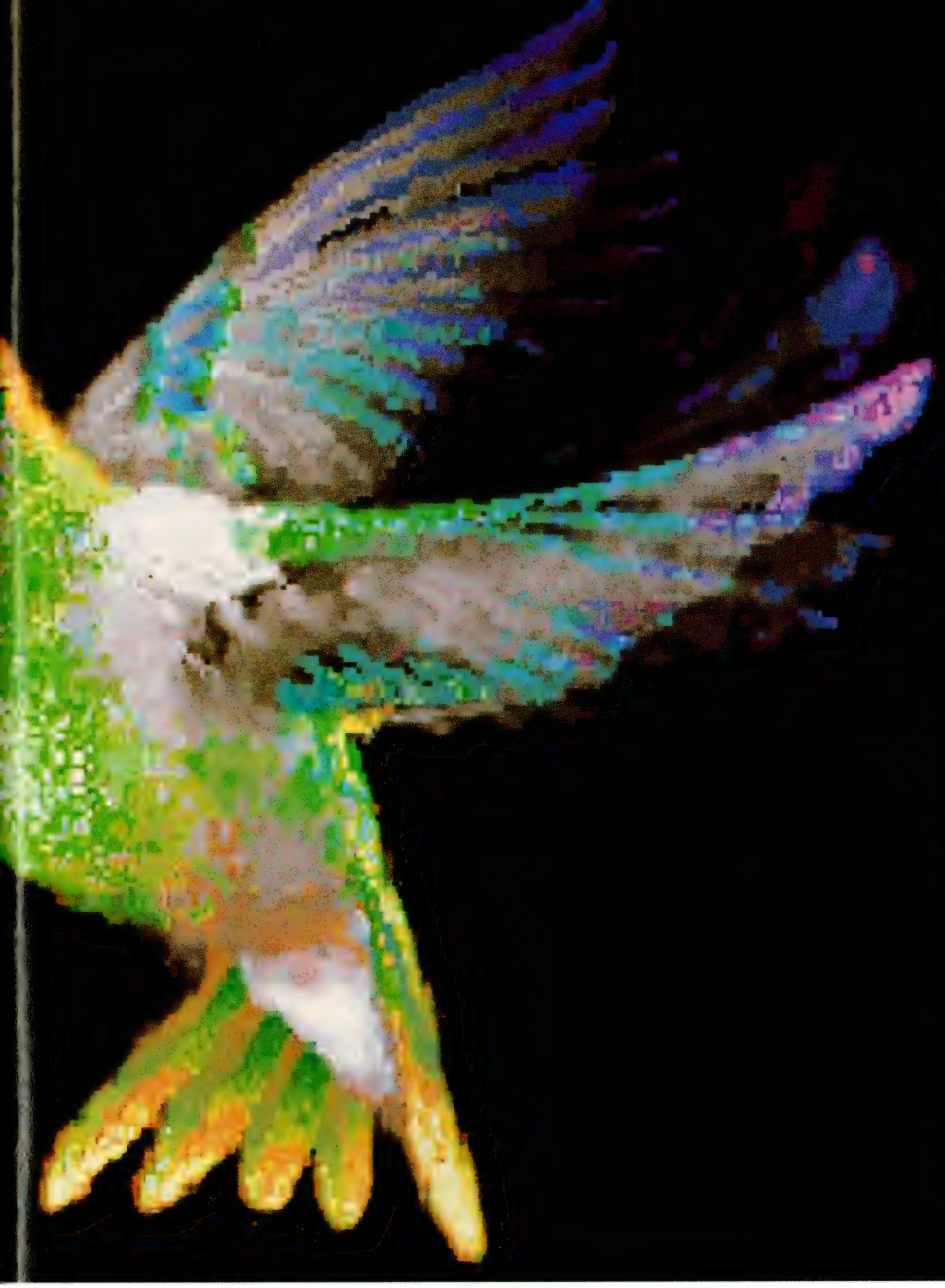
MULTIMEDIA TAKES OFF

IN 1945 Vannevar Bush, then a science advisor to US President Franklin Roosevelt, published 'As We May Think' in *The Atlantic Monthly*. In that article he sowed the seeds of multimedia, a combination of text, graphics, sound, animation, speech, images, music and video using a PC. In his article, Bush described the desk-sized memex and offered it as a technological aid to research. The notion behind the memex was that all of the information on a given topic, related topics and source material would be stored on microfilm and could be called up on a backlit screen by the researcher.

The breakthrough Bush conceived was that the path through this mass of documents would be associative and repeatable. That is, the user could move from one related topic to another, examining each at the required level of depth, and recording (on microfilm) the train of thought. Bush suggested a new profession which would work to establish links between previously unconnected regions of information, bringing topics as diverse as the preferred diet of a species of ants and the juvenile crime rate in southeast Asia under a single umbrella – I can't imagine what 'link' there might be between the two, but that was the job of these 'synergists', as they were described in science fiction in the '50s.

With multimedia techniques, powerful modelling and animation packages can be combined to give effective training presentations – this image was drawn in Swivel3D for the Mac and incorporated into a video using MacroMind Director (courtesy of Firmware Designs).

'As We May Think' was a landmark in the computer age – in 1945 computers were still seen simply as number crunchers, useful for generating tables of logarithms and the like, but what Bush proposed was nothing less than using them to control and interact with information.



'information technology' in its purest form.

If the memex sounds like hypertext, that's because a graduate student at Harvard, Theodore Nelson, read the article in 1960 and saw Bush's idea as a way of 'linking' his research notes in such a way that they could be stored, retrieved and edited according to assigned topics, with links to related topics at every level. Nelson gave his idea the name 'hypertext' and defined it as text linked to other text in associative patterns; these patterns were user-defined so each application could be as specific or general as needed.

He pictured documents in a hypertext system as part of an unlimited structure of information with direct paths from one part to another – he envisioned the day when all knowledge would be part of a single hypertext 'structure'. The name he assigned to the project gives an indication of the scope of his vision and the romance he associated with it: Xanadu.

Programming that vision into reality took Nelson and his co-workers another fifteen years. In the mid-seventies, they showed a version that offered a new approach to file formatting and indexing. While Xanadu laid the conceptual foundations for multimedia applications, Nelson has yet to release a commercial product, noting that, 'What is really lacking are the visionary artists, writers, publishers and investors who can see the possibilities and help carry such ideas into reality.'

Many of the hardware developments that allow the idea of multimedia to be applied were the brainwork of another visionary: Doug Engelbart, who, with his work at SRI in the '50s, '60s and early '70s, strove to 'augment the human intellect'. Among Engelbart's ideas were the computer mouse, multiple windows, graphical and consistent interfaces, hierarchical file structure, text and graphics in one file and electronic mail.

Many of those who worked under him at SRI have implemented and developed these concepts with work at Sun, Xerox, Commodore, NeXT and Intel, giving us a solid platform from which multimedia can develop. A term used to describe interactive multimedia gives an indication of where that platform will carry us: 'hypermedia' – it suggests a flow of information without the constraints of the supporting 'medium'.

HyperCard

WHEN BILL Atkinson's HyperCard was released in mid-1988, it was greeted with open arms by the Mac fraternity – but for the wrong reason! Most users saw it as a way of being able to program the Mac without having to master the notoriously complex operating system; in fact many pundits wrote off Apple's 'software erector set' (as the company described it at the time) as a solution looking for a problem. The multimedia potential of what was offered was slow to sink in.

HyperCard was the first commercially successful hypermedia product and set standards for those that were developed after it. (Stewart Fist gave *YC* readers an introduction to the concepts behind HyperCard and its programming language, HyperTalk, in 'Behind HyperCard' in our July, August and September, 1988, issues.)

Essentially there were four reasons for HyperCard's success. First, it is based on a concept that most of us have been familiar with since school days: the 3 by 5 inch index card. Under the software, each screen is the equivalent of one of these cards. The cards can hold words, images, sound and even animation and controls; they can be sorted according to user-defined criteria and arranged into 'stacks', which, just like their cardboard precursor, are a database of ideas, graphics and information.

The second reason is the simplicity of the system. Inherent with it are a complete set of authoring tools. These are used to create cards, stacks, buttons (the links between cards, these are also used to initiate a specified action), fields (as in a database) for text and other objects, and bit mapped graphics. Using these, any reasonably literate PC user can quickly build a working application without ever learning how to program.

This simplicity is also evident in Hyper-

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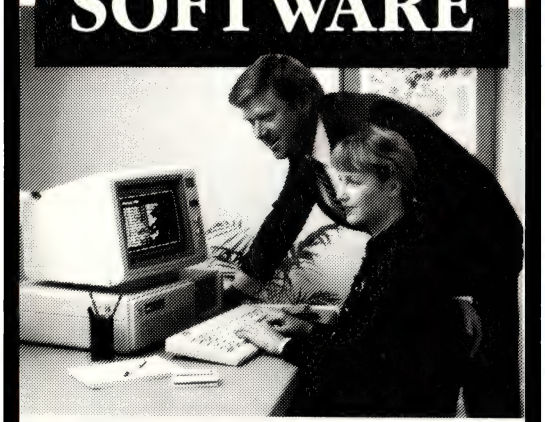

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To add graphics to a video a capture board is needed. One of the latest of these is VGA Producer from Quinto Communications which takes VGA graphics and converts them into a PAL video signal.

Talk, which is very English-like. For example:

```
on mouseUp
   go to stack "Phone"
      visual effect zoom
end mouseUp
```

– does exactly what it says. Users find themselves quite proficient after only several hours, rather than the several months that are needed to develop skills in languages like C or dBase.

International Business Multimedia

IBM HAS traditionally been like a behemoth – it takes a long time to change directions. But the company has become one of the most active proponents of multimedia. In June, IBM vice president Lucie Fjeldstad was appointed as president of the newly formed Multimedia and Education Division.

Announcing the appointment a senior vice president said, 'Creating the Multimedia and Education Division represents a major commitment by IBM to multimedia. This increased focus ensures that IBM will continue to play a leadership role in a dynamic, rapidly expanding field. Multimedia will be to computing in the '90s what PCs were to computing in the '80s.'

The division will be responsible for the strategic direction of multimedia market development and US marketing of multimedia products including industry and cross industry applications. It will continue to focus on education and IBM's commitment to the academic environment. The division is part of IBM's Application Solutions line of business.

One of the products that Fjeldstad will oversee the development of is an automated photomachine that will allow customers to deliver unprocessed film and receive pictures and slides back the next day.

Delphi Technology, an Atlanta-based photo processing company, will design the interactive multimedia merchandising kiosk for the units which are to be located in high traffic consumer locations such as supermarkets, large office buildings and mass market retailers. They will be available 24 hours, 7 days a week on a self-service basis and will be configured to accept payment by cash, check or credit card.

The kiosks will be based on IBM PS/2 microcomputers and IBM multimedia technology and will feature touch screens.

On another multimedia front, Soviet customers saw how multimedia presentations can be an educational tool during the Moscow PC World Forum held in July. In its booth, IBM showed a chemistry course made by US company Falcon Software. A PS/2 model 50Z computer with a special M-motion board worked as a fully equipped university chemistry lab. People were attracted by the dynamic show that included flashing lights and a short shuttle launch movie.

– Newsbytes

The third reason is flexibility. HyperCard can be used on many levels for a myriad of purposes. It can offer a casual browsing environment, say in a museum or travel agency, for the passive absorption of information, or a full-blown authoring system for interactive applications. Uses for the program range from storing phone numbers and addresses, to desktop publishing, business presentations and interactive university 'lectures'.

The fourth reason is the simplest: Apple have been giving HyperCard away with every new Mac.

The first three reasons above are the features which any hypermedia application needs to be useful (and used): familiar concepts, simplicity and flexibility. Of course, the fourth reason is also helpful, but is far less important than the other three – if a program is based on alien concepts that are rigid in application and difficult to learn, even giving it away is going to be difficult. Mastering the various technologies that may be needed for a multimedia application – video, genlocking, MIDI, compact disks, whatever – are problem enough without having to spend months mastering the software that brings them all together.

Just as HyperCard demonstrates what such a program should be, its limitations demonstrate the problems that developers are having to overcome. Shortcomings such as the lack of color and stereo sound have been addressed by improving the PC platform itself, as Apple have done with the new Macintosh range. Others, such as being restricted to single tasking, or not being able to watch a 'script' (HyperCard program) as it executes and the object of that execution at the same time, have also been addressed by various developers.

But the biggest limitation to multimedia applications was recognised 45 years ago by Bush in that landmark article: data compression. Bush suggested that memex documents would need to be compressed on the order 1,000,000:1, first, to allow efficient storage of the documents, and, second, to give workable retrieval times.

HyperCard uses data compression and *un*-compression techniques that work quite fast with text and still images, but are frustratingly slow with animation. If you think about what's involved, the reason behind this is straightforward. For example, motion video needs about 720K of disk space for a single frame, but to look 'real' something on the order of 30 frames need to be displayed per second: that means one second of viewing needs over

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22Mb of storage – even a CD-ROM could only hold 30 seconds of video. (The amount of disk space needed for computer generated animations may be smaller, but it still takes a lot of disk space for little return.)

At the moment, the leader in developing compression technology is an Intel company, DVI Technologies. The techniques it has developed for compression (up to 160:1) mean that a single CD-ROM can hold 44 hours of straight audio, 650,000 pages of plain text, 40,000 still images and 72 minutes of full motion video.

Digital video

TO UNDERSTAND how that compression is accomplished, it's necessary to consider three background processes: sampling and quantising, how color is handled and the compression itself.

The real world is analog – that is, the sights, sound and colors that strike our senses are continuous in both time and value – see Figure 1. These analog waveforms need to be converted to non-continuous digital data in order to be manipulated by computer or other electronic means. So, rather than working with continuous time, a 'sampling' rate is chosen and rather than work with continuous values (the amplitude of the waveform) only the values at those intervals determined by the sampling frequency are used. Taken together, these two steps are generally referred to as A/D (analog-to-digital) conversion; in video work, the process is known as 'digitising'

The time intervals in sampling are a function of the computer system's internal clock: so many clock cycles per sample. At sampling time, a pulse is generated to signal that the value of the waveform at that time should be recorded. But, this is a digital system and requires whole integers to work with. These are determined by setting a series of thresholds – the highest threshold crossed by the wave approximates its value at that time; assigning a value using this method is referred to as coding. The process of digitally coding a sampled signal is referred to as 'pulse code modulation' (PCM).

If we use 16 quantising levels – thresholds – all possible values can be recorded using four bits since 16 is 2^4. As you might imagine, using only 4 bits per sample gives a very approximate representation of the analog input when the process is reversed (D/A conversion), so in practice much higher values are used.

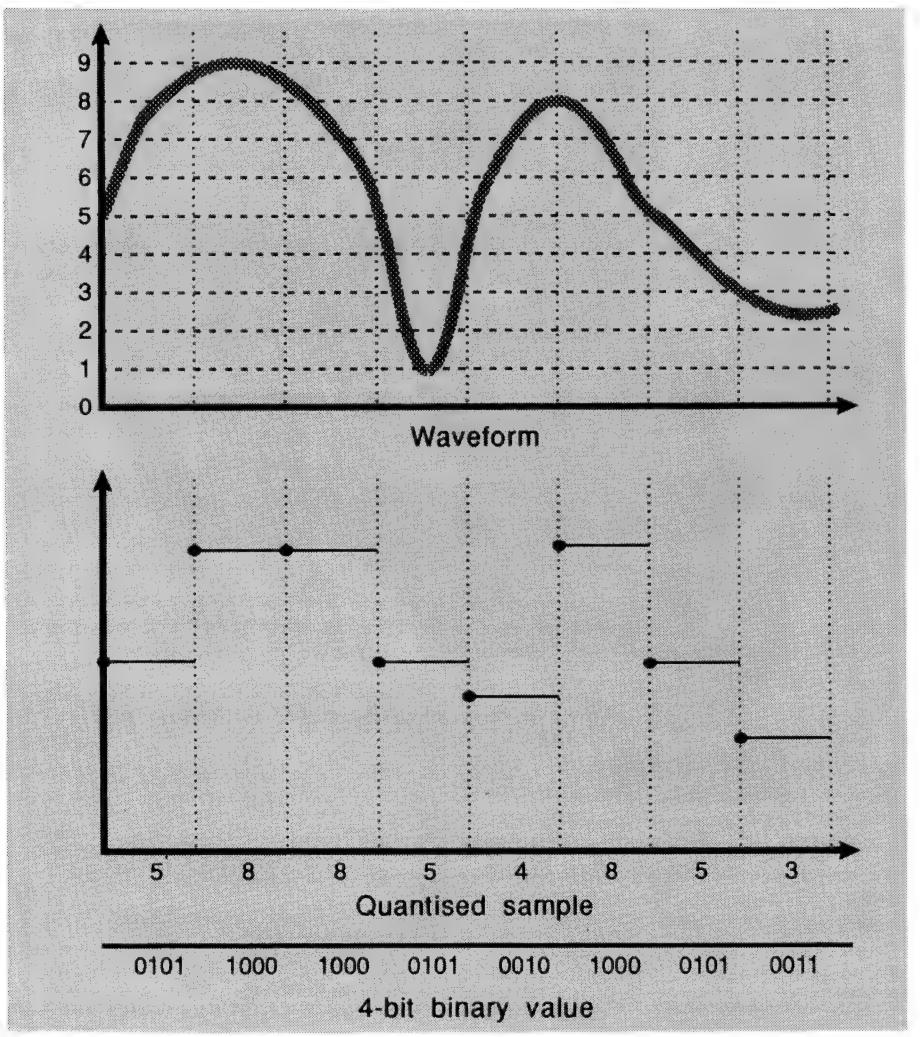

Figure 1. *The analog real world needs to be converted to digital values in order to be manipulated by electronic means. This is a two-step process: first a sampling frequency is set and then only the value of the waveform at intervals is quantised (given a value) in discrete steps. Of course, this gives only an approximation of the real image or sound, but by choosing the numbers carefully the errors introduced can be made almost un-noticeable.*

He pictured documents in a hypertext system as part of an unlimited structure of information with direct paths from one part to another.

Figure 2 demonstrates how the sampling rate affects the result. The point to note here is that the sampling rate needs to be chosen carefully if the output is to be a good approximation of the input: not sampling frequently enough results in output with little resemblance to the original.

During output, the series of digital numbers (the bit stream) created by sampling and quantising is played back. Each number represents an adjacent point in the image; each point is a 'pixel' (picture elements). Using 16 quantising levels, gives 16 possible shades of 'grey' in the output: 0000 representing 'white' and 1111, 'black'.

But, black-and-white output is hardly realistic – we need color. That is accomplished with an extension of the technique described above: instead of a single

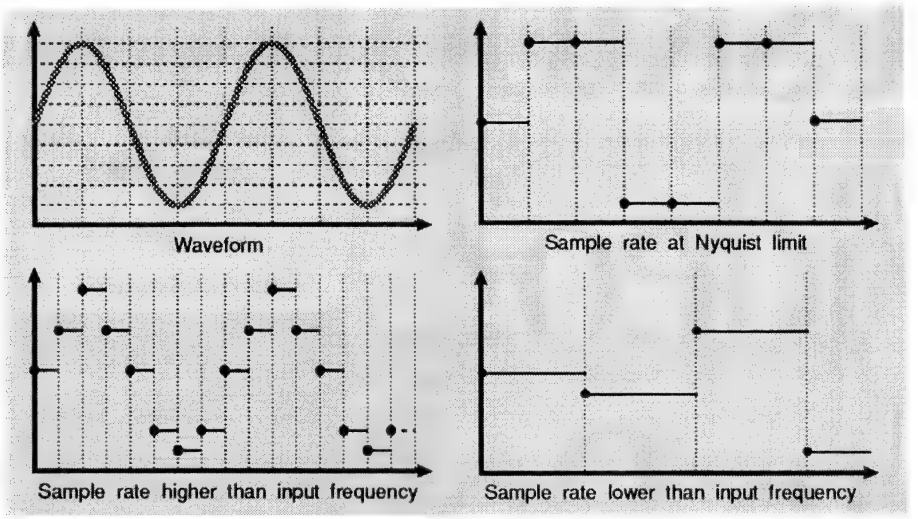

Figure 2. *The sampling rate determines how 'approximate' the digital image will be. In* ***a)****, a high sampling rate is used: this would give a digital image very close to the original, but it requires a lot more data to be handled and stored; in most instances, this would be overkill. In* ***b)****, the sampling rate chosen is too infrequent and the resultant output would probably be unrecognisable. The ideal situation is shown in* ***c)*** *– note that the waveform is sampled twice in each cycle; the rule of thumb is that the sampling rate needs to be twice the bandwidth of the signal to be digitised.*

stream of data, three are used in parallel (one each for red, green and blue), instead of 4 bits per pixel, 8 are used. When these are combined during playback the result is one of a possible 16 million colors for each pixel ($3 \times 8 = 24$; $2^{24} = 16{,}777{,}216$).

This is more than enough to give a realistic image, but using 24 bits per pixel means that an image with a resolution of 512×480 pixels – generally the minimum needed to avoid 'pixellation' (chunkiness, rather than smooth contours) – requires the 720K of disk storage for each image (frame) noted above.

Compression

THERE ARE A number of video compression techniques in use, but they all require processing for compression and, again, for decompression. These are processor intensive applications and special hardware is required to make it fast enough to be 'real' – a PC's CPU just isn't quick enough.

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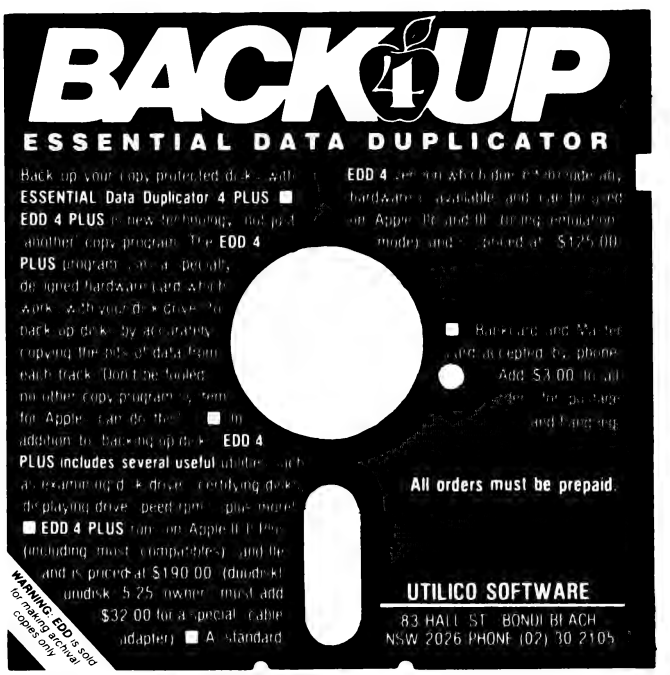

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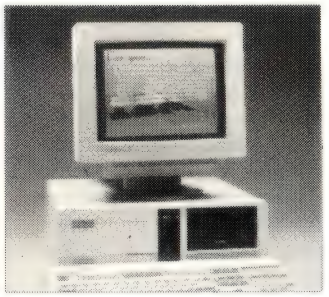

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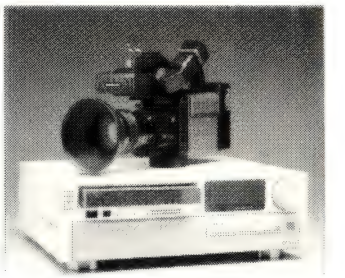

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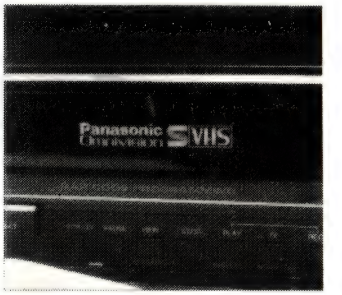
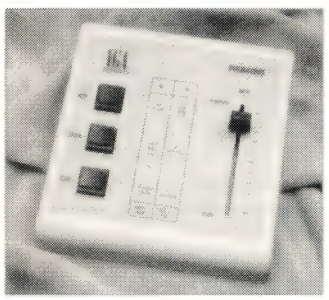
PAL/VHS



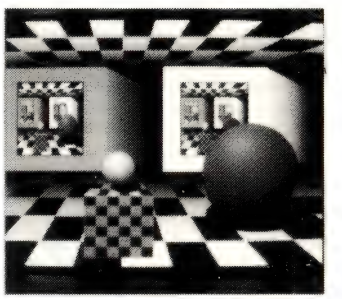
S-VHS



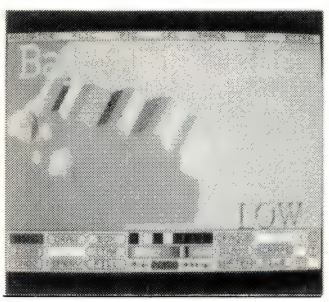
TRANSITION EFFECTS

OVERLAY (ANY-COLOR KEY)

FADE



640 x 480 256 COLORS



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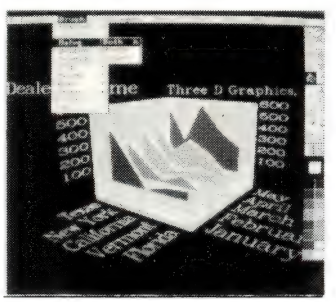

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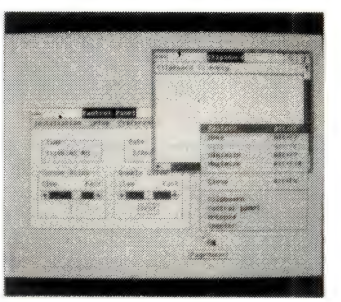

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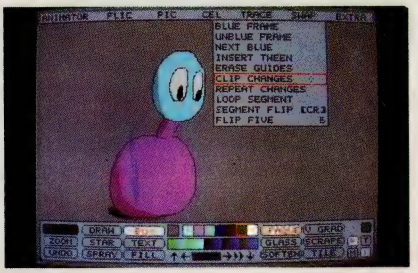
sets the resolution and pixel format – possible resolutions are from 256 to 1024 pixels horizontally and up to 512 vertically.

Compression is defined in terms of the number of bits per displayed pixel in the compressed bit stream. For example, if the input image is recorded at 24 bits per pixel (bpp), giving a size of 20,000 bytes and the output has a resolution of 512 *x* 480, then the degree of compression is –

(20,000)(24)/(512)(480) =
2 bits per pixel

Compression ratios (input data output data) are often quoted, but this can be misleading if the input and output formats are different. For example, the input image might be 512 *x* 480 with 24bpp, but the output is 256 *x* 240 at 8bpp; in the example above this gives a compression ratio of about 50:1, but, outputting at a

Autodesk Animator



Animator is a leap beyond current business presentation packages – it's a complete animation package which allows users to create two dimensional video presentations from existing video or computerised images.

CERTAIN PROGRAMS are recognised as watersheds in the development of the PC: WordStar, Lotus 1-2-3, dBase, Harvard Presentation Graphics, all will go down as creating or legitimising a new class of software. Another program is likely to join that select few. Called Animator, it opens up the world of multimedia to the average PC user. And this world is going to have as much impact on the business community as presentation graphics and desktop publishing.

Animator is the product of Autodesk, the company behind AutoCad. Released last year, it has already picked awards from *PC/Computing* (Most Valuable Product of 1989), *PC Magazine* (Technical Excellence Award and Product Performance Award) and *PC Users* (PC Product of the year, Most Innovative Product of the Year and Best New Product of the Year).

Animator is a quantum leap beyond any business presentation of paint package you've ever seen. It is a complete animation package which allows users to create two dimensional video presentations from existing video or computerised images, using a wide range of animation techniques. A presentation of up to 4000 images can be stored to a floppy disk and shown on other computers, transferred to video tape or even broadcast. And, with a display speed of up to 70 images per second, Animator can produce a video-like display. All this comes at the modest price of $495.

For really big presentations, and those that require video images, many businesses have been using outside production houses to put together product launch videos and sales presentations. These cost big bucks and have the disadvantage that if anything changes, they have to be redone from scratch.

With Animator, desktop presentation has taken a dramatic leap into this territory. Autodesk describes Animator as a pixel-based two-dimensional animation system. By creating animations on a PC, not only is the cost controlled, but changes can be made in an instant. And, just as a video tape can be duplicated and sent out, so an Animator presentation can be stored to disk in a format that can be run without the original software.

A Melbourne company, Lako Vision, is using Animator in a big way. In a recent job, it had to generate a new video for the Adelaide Casino. The old video was dated by the changing skyline. The process started by connecting a VCR up to the PC, capturing some of the existing video images and then using Animator to create on-screen text and animate the image. The result was a new video, produced on a PC, for a fraction of the cost of a conventionally produced video.

The applications Animator can be used for are practically limitless. Real estate agencies could use Animator to create better images of properties they have on the books. Picture agencies could store libraries of images on a disk that could be sent out to clients. Advertising agencies could make an image more suitable to the needs of a client by editing out unnecessary items. And in Melbourne, a plastic surgeon wants to use Animator to show prospective patients what effects plastic surgery would have, by modifying an on-screen photo!

Animator is the first product in a new class of software, opening up new possibilities in the desktop presentation world. And where you only have minutes to make an impact, any edge is worth having!

– Mark Casey

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lower resolution contributed a quarter of that, so the actual compression with similar input and output would be about 12:1.

In most applications compression and decompression will take place at different times. An image will be compressed, stored, distributed and then decompressed. Because the viewer will be waiting to see the decompressed image, time is critical at this stage and the time needed to compress the image is irrelevant (if the images are real-time video, the compression speed needs to be fast enough to capture the motion in real time, of course).

The hardware and software needed for compression/decompression is determined by the complexity of the algorithms used. A complex algorithm that requires thousands of operations on every input pixel is most economically implemented by hard-wiring circuits in a chip (as DVI have done) – since both the chip and the algorithm are proprietary, a DVI system is required at each end.

Almost every compression algorithm takes advantage of the fact that there is redundancy in the digital image – for example a color may span several pixels, or, the image may have a particular orientation so adjacent lines may be the same. The most useful redundancy in compression is that between adjacent frames in a moving image – often less than half of the pixels change. Another factor that compression techniques take advantage of is that there is no need to display more information than the human eye can take in; for example, the human eye lacks acuity for certain colors, so these can be displayed at a lower resolution than the original.

Techniques

THE SIMPLEST compression technique is truncation – lowering the number of bits per pixel in the output. Taken to extremes, this gives cartoon-like output, but the software and hardware required are inexpensive and processing is relatively fast. Another simple technique uses color look up tables (CLUTs) – for example, an 8bpp image can display 256 colors onscreen at one time from a palette of 16 million; the 256 colors that will best reproduce that image are assigned to a table and the pixels in the image are assigned values which refer to this table. The 256 colors to be displayed can change for each image, giving realistic results. As you can imagine, this takes a lot of processing, so for anything higher than 8bpp, truncation is generally used.

If the bit stream generated by the image has a significant number of repeated values (say, large areas of the same color as used in cartoons), a third technique, run-length coding, can be useful. Here, blocks of repeated values are replaced with a single value and a number indicating how many times it's repeated.

While the specific techniques and algorithms used by DVI are proprietary, the two general techniques used are interpolative and predictive. Interpolative compression is also used in NTSC television

Toolbook

WHEN MICROSOFT began shipping Windows 3.0, it was accompanied by a disk which didn't carry the Microsoft name – Toolbook, from Asymetrix, a company started in 1987 by Paul Allen, one of Microsoft's co-founders. Actually, the disk shipped with Windows is a run-time demonstration of Toolbook, which contains a 'book' illustrating some of the capabilities of Toolbook, and a program called Daybook, basically a calendar and diary application.

Toolbook is based upon the concept of a book, containing pages (like any real book) of information – equivalent to HyperCard's stacks and cards. Cards can contain various types of objects, including pictures and data fields, the latter forming the basis of Toolbook's database capabilities. A script language (similar in syntax to Hypercard) allows the author to establish links between various cards in the book – analogous to turning the pages of a real book.

While a run-time version of Toolbook is shipped with all copies it is still a far cry from making the full version part of the system software, *a'la* Hypercard. However the availability of an optional run-time module means that authors can create books for sale to third parties, without the users needing to have a copy of Toolbook. This also prevents users from modifying books, which may be a good or bad thing, depending upon whether you are the author or the user.

And just to make sure there is a ready-supply of Toolbook 'books', Heizer Software has a package called ConvertIt!, which translates HyperCard stacks into books suitable for Toolbook. This program, like Toolbook itself, is distributed by Solutions (075) 395 422, and retails for $399. Toolbook's recommended retail price is $595.

Point of sales displays are increasingly using multimedia in conjunction with touch screens to give 'personalised' service without tying up sales staff.

signals and takes advantage of the eye's lack of color acuity. Now, if we define colors in terms of their chrominance (color) and luminance (brightness), compression can be achieved by reducing the amount of color information used to record and display the image (on the other hand, the eye is quite sensitive to changes in brightness, so the data here needs to be complete).

Only a subset of the pixels are sampled from the original image and the eye (in the case of NTSC TV) or the hardware used 'interpolate' the other colors.

In its simplest form, predictive compression operates at the pixel level using a technique referred to as 'differential pulse code modulation' (DPCM). It is also widely used in audio compression and works by comparing adjacent pixels and then recording only the difference between them. This assumes that the differences between adjacent pixels are small (which they most often are). If the image is 8 bits per pixel, the difference can probably be recorded using only 4 bits; at playback we still have the full 8-bit resolution. That works fine as long as there are never more than 16 steps (differences in threshold values) between pixels. But, if the difference between pixels calls for a full-amplitude change (from black to white, say) it takes a number of pixels to make the change – this causes smearing along the edges of high-contrast images ('slope overload' is the technical term).

This is overcome using 'adaptive DPCM'. If the large amplitude change is expected, then the step size can be increased allowing greater differences (contrast) between pixels and reduced afterwards to allow fine gradations to be displayed.

Digital motion video

THE TECHNIQUES discussed above work fine with audio and still images, but introducing motion into the image brings an-

DVI's multimedia application development system has been given a big boost by CEIT's Authology: Multimedia – developers no longer have to program in C.

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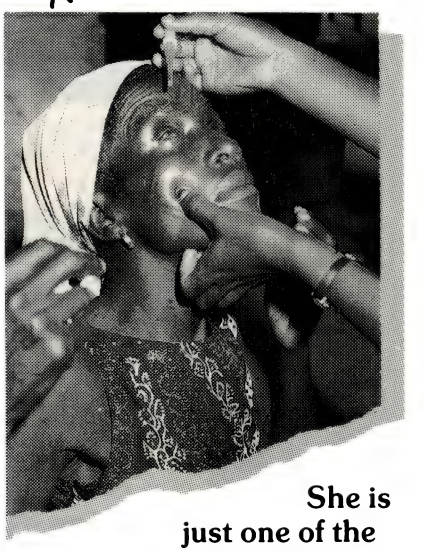

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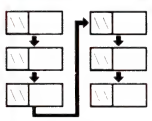


FlowCharts

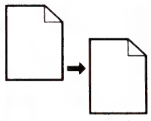
The first step is to create a diagram of your program by using the *FlowCharts* tool. *Matrix Layout* already has Flowchart blocks built-in. Then there is the choice of hundreds of objects to give you all the functions you'll ever need. You can also add your own specialized objects which can be saved in *Matrix Layout* for later use.

Paint

The second step (if you like) is to use the *Paint* function to add pictures or buttons to your program. *Paint* has a full pallette of graphics tools that enables you to draw an image, which can be placed into your program. You can even scan.

Cards

The third step/or option is *Cards*. This lets you build a database of cards containing either text, graphics or buttons. You can link together various kinds of cards, then use them in your program.



Convert Files

Now that you've created your program the last thing to do is save. *Matrix Layout* will automatically create a ready-to-run .EXE file or create the finished source code in Microsoft C, Turbo C, QuickBasic, Turbo Pascal or Lattice C. ($100 extra for dBASE)
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other set of problems. (As you can see by now, this is a very complex topic and I am hardly doing it justice here – if you'd like to go into it more deeply, one of the developers of NTSC television, video cassette recorders and the DVI technology has written *Digital Video in the PC Environment*, McGraw Hill, 1989. The discussions on hardware are somewhat dated now, but the theory and other technical information presented are requisite background if you want to pursue digital video.)

We mentioned one of the problems earlier: 25 or 30 frames need to be displayed every second to achieve smooth movement. The second problem is that motion video requires higher compression than still video. This comes about because there is a physical limit to how fast data can be read from the storage medium. A CD-ROM, for example, cannot deliver data more quickly than 150,000 bytes per second. Since we need 30 frames per second for motion, each frame is limited to 5000 bytes of data. To accomplish this with full-motion, full-color images requires compression on the order of 0.5 bits per pixel – that's much greater than can be accomplished with the techniques described above and still give a realistic image.

Fortunately, there is a great deal of redundancy between frames. The techniques that exploits this fact is referred to as 'motion compensation' If the scene being displayed is stationary there is no problem – the first frame is displayed and remains on screen until it is changed by the movement of an object. During the compression process, the images both be-

3D Studio

THERE IS A certain class of computer graphics guaranteed to take the breath away. It is usually seen in documentaries on the subject, featuring spinning balls with three dimensional geometrical shapes reflected in them, photorealistic product animations and surrealistic but believable landscapes.

These animations have been way beyond the capacity of the average PC. They have been produced with expensive software on mimi and mainframe computers run by technicians who have had months or years of experience in the field. The history of computing is the history of the esoteric becoming the everyday, and Autodesk, the company behind the AutoCad, is about to make this high ground of the graphics world available to the average PC, ready to be incorporated into multimedia.

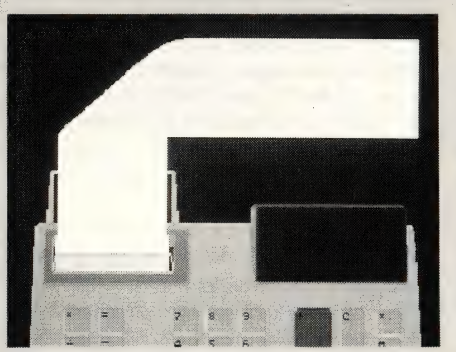
In a phrase, Autodesk's 3D Studio is a three-dimensional object-based animation system. It features a modeller, to build objects, a materials editor, to create surfaces, a keyframer, to provide animation and a renderer, to stimulate lighting. These features are usually the domain of software companies such as Wavefront Technologies and ALIAS Research whose packages sell for $50,000 or more. Autodesk has announced that 3D Studio will sell for $US2995.

The largest, but the least developed market, is the desktop presentation market, where the power of PC animation can be the difference between a great pitch and a sleeper. The features of 3D Studio are light years ahead of typical PC graphics packages. A more established market is the television broadcast market, where 3D Studio will enable production houses to develop quality animated sequences in house and on everyday hardware.

In the Cad market, 3D Studio should find a niche in prototyping and the presentation of design concepts. It can read and write AutoCad's DXF file format, making it a perfect complement to a Cad system.

Finally, Autodesk believes 3D Studio will find appeal in the print media, where it could be used to generate high quality, 32-bit images with excellent tonal range and detail. To run 3D Studio, a '386 or '486 PC is the key – the more power the better. Also needed is a maths coprocessor, colour VGA display, 3 MByte RAM and a mouse.

The four modules in the package share a common interface. The modelling module is where the fun begins. It allows the user to create 3D objects for rendering and animation. But because there is a real skill to developing 3D shapes, Autodesk supplies a collection of 3D primitives to start with – shapes such as cubes, spheres, cones, prisms and toroids. Both 2D and 3D AutoCad files can be imported. With 3D files, there is little work to do. With flat images, 3D Studio has the power to add the third dimension. The two-dimensional image can be extruded along the z axis to create a three-dimensional object. The 3D editing features then allow the object to be smoothed, twisted, bent, scaled and bevelled.



This calculator was created with 3D Studio – note the texture of the 'plastic' cover and buttons.

A full range of tools is provided for those starting a model from scratch. The product copes with lines, circles, curves, arcs, ellipses and regular polygons, to an accuracy of 0.01cm. It has user definable grids and grid snapping and a test editing function. Freeform 3D sculpting is also possible and textures can be precisely aligned on an object. Spot or diffuse lighting sources can be placed anywhere and changing viewpoints, or cameras, with zoom, simulated in real time.

There is a materials editor to develop and edit surface textures (a library of materials is supplied). Different shading methods, such as wireframe, flat, Gouraud and Phong, are supported and can be applied selectively to a portion of the material. Materials can also be made self-illuminating, so they act as a light source.

The key framer module is used to control the movement of models, over time and space. Hierarchies of models cut down much of the work. Within a heirarchy, models can selectively inherit position, rotation, scale, squash and stretch characteristics. Hierarchies can also be slaved to dummy objects that will not be rendered and the elements of a heirarchy set up to duplicate as the animation proceeds.

Lighting and viewpoints have similar controls. Lights can be slaved to objects or cameras, cameras can be slaved to objects, animated and made to travel along paths drawn up in the modelling module.

With a model constructed, the power of the rendering module is tapped. This provides a 32-bit rendering of still images or animations. Rendering can take less than a minute for simple images, but complex shapes with plenty of anti-aliasing may take 20 minutes or more. A quick preview mode lets the user see what will result before an overnight rendering session is commenced.

With all these features – and more I haven't mentioned – 3D Studio is perhaps the most powerful graphics tool on a PC yet.

– Mark Casey

fore and after the current image will be available for comparison, pixel by pixel. If there is no motion, there will be no change in the pixel so the data for it is repeated; only the data for the changed pixels needs to be recorded.

That's a simplistic explanation of what occurs. In actuality, the technique used divides the image into blocks (the motion equivalent of the coding technique described above) and performs transforms on these blocks to determine which change and which remain the same between frames.

From the forgoing discussion, it's easy to understand we are only now seeing full-blown multimedia presentations coming on-line. Combining all of the elements is a complex and expensive operation. For many multimedia applications, however, we don't need motion and sound – a simple combination of graphics and text, or text and sound may well get the message across.

In fact, the power of multimedia is dangerous, particularly in the hands of the novice. Audiences can be driven to distraction by complex graphics, irrelevant music, overdone animation, overloaded text screens and too much talking – combine all that into a 2 or 3 minute presentation and it's likely that the audience will suffer sensory overload and recall little of what was being presented.

To be effective, presentations need to be carefully thought out beforehand. Who is the audience? Technical specialists, potential customers for a new product or service, trainees and students, passive and active audiences all require approaches tailored particularly to their level. What is the aim of the presentation? Teaching, explaining, demonstrating and simply telling about a topic all require careful forethought. What points are to be stressed so that the audience recalls them later? Which media can be used most effectively?

(*Desktop Video* by Brett Sullivan covers the forethought necessary to develop effective presentations and includes a wealth of tips on effective presentation development and design. Although it particularly discusses the Commodore Amiga, the topics are covered generally enough to be useful to anyone with an interest in this area. Chapter 4 ('Design') appeared in *YC*, July, 1990. If you would like a copy, it's available by sending $9.95 plus $1.50 p&p to The Federal Publishing Co, PO Box 199, Alexandria 2015 NSW.)

Only a subset of the pixels are sampled from the original image and the eye (in the case of NTSC TV) or the hardware used 'interpolate' the other colors.

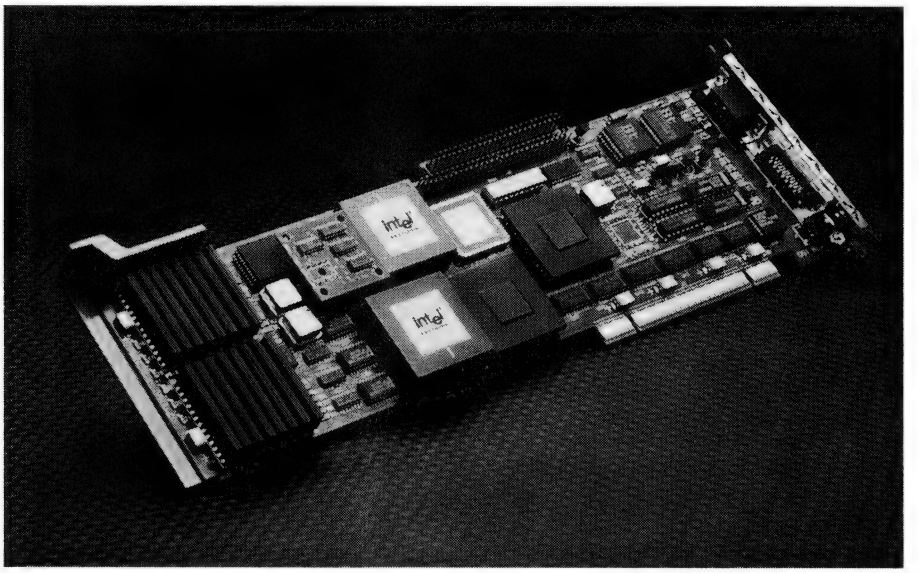
Authoring

REGARDLESS OF HOW many different media the presentation might use when it's complete and the form it might take, the 'production' needs to be organised, step by step. These steps all fall under the heading of 'authoring'. Recently there have been a number of new products released that do an excellent job of bringing all of the elements of multimedia together: authoring software.

Design: This essential first step is also referred to as outlining, flowcharting, storyboarding or prototyping. It's critical that your thoughts be organised if the presentation is going to be coherent. As important as the graphics, sound and/or animation used is the sequence in which they are presented. Ideas need to be presented in a logical and natural fashion for them to be retained by the audience.

There are two approaches that can be taken to a presentation; which is to be used needs to be decided very early in the planning stage. You can either digitise everything and store it on a hard disk or CD-ROM (the best approach if the presentation is going to be distributed to sales branches or schools, or it's necessary to take the material to audiences), or, you can store text and graphics only on the hard disk, or, you can use the computer as a master control to play sound and vision from peripherals and to bring up the images from the hard disk as required. Since this approach requires that those peripherals be carted to the audience, it can be inconvenient (to say the least), although it is usually the most cost effective method for doing presentations that need to be changed frequently, or are only to be given several times.

Preparation: All of the elements used in a presentation need to aim at the point you are trying to reach. 'Preparation' can be as simple as choosing a relevant slide, or it may involve re-working the graphic to emphasise one aspect of the information shown; it might require retouching scanned images or editing audio and video material. If the result is to be a full-blown, multimedia production, it may be



Intel's ActionMedia 750 Delivery Board brings the power of DVI technology to the PC. The board includes video and graphics processors, an audio signal processor, a SCSI interface for CD-ROM and other peripherals, two-channel audio and VGA or analog RGB output.

neccesary to do special video shoots or sound recordings (at costs ranging up to several thousand dollars a day, plus professional editing).

This is the step that will have the most noticeable effect on the visual side of the presentation – for that reason a lot of thought and work needs to be done here.

Compression ratios (input data/output data) are often quoted, but this can be misleading if the input and output formats are different.

No matter how important or significant the information you are trying to convey, if the graphics, say, are poorly done or marginally relevant, that is more likely to be remembered than the point of the presentation.

Some thought needs to be put into the hardware and software systems to be used. Any good presentation package includes an export facility so on-screen charts can be converted to 35mm transparencies or overhead film (check that the slide bureau to be used can read the output of the package – in computer graphics the standards are still pretty loose, especially amongst those programs that produce files with a .PCX extension).

However, in many cases you will want to use a screen from a package that was never intended for presentation. Then, some form of screen capture utility will be needed. Two points to watch here if you are working on an IBM-compatible system: many older programs do not support VGA graphics (this won't affect the quality of the slide necessarily, but it means that you won't have a good idea of the result until you see the slide) and many do not support MS Windows – many that claim to be able to capture Windows screens only work with Windows in real mode.

Pizazz Plus – that well-known screen dump utility much enhanced – captures any Dos screen (but doesn't support Windows 3) and features extensive color editing capabilities and compatibility with a wide range of video boards. It's $149 from Technical Imports, (02) 954 0248; fax (02) 925 0311. Technical Imports also handles Show Partner F/X ($580; reviewed in our July issue), which does support Windows 3. With Show Partner coupled to HyperPad (a HyperCard-like system; also from Technical Imports), you can have an authoring system that offers many of the features of the 'real thing'

If graphics are going to be incorporated into a video, then a capture board will be needed. The latest of these is VGA Producer ($4770, from Quinto Communications, (03) 819 6675; fax (03) 819 5360), video genlock encoder card. It takes VGA graphics and converts them into a PAL video signal. VGA producer complies with the full set of PAL broadcast specifications so the results can be used on TV without loss of quality.

If you need to edit images in a video, Lako Vision, (03) 525 2788, has recently released its Desktop Video Solution, which also works with still images. The system comprises a Canon still video camera, a digitising system and two animation programs to give a full range of features, Autodesk Animator and VCN Concorde. The system is quite flexible in that still images from any source can be animated and re-recorded on video; or, images can be taken from the video and animated independently of the original. The basic system is priced at about $3800;

Commodore's authoring system, AmigaVision, is a popular choice for developing interactive learning systems.

if you want to output back to video, add $1500 to $3500, depending on the features required.

Data management: If the presentation is going to be more than several minutes in length and involve more than two media, then formal data management of some description will be necessary (as opposed to the informal: 'I remember where it is'). For example, you may need to know where a particular phrase occurs on an audio tape, or what was the source of the numbers used in a graph and the software used to produce that graph; you will certainly want to know the size of animation and graphics files.

While scraps of paper or index cards offer a solution, that hardly makes effective use of the computer power available. Authoring systems (more on these later) usually offer a database for this purpose and other tools that help in management. These can include file protection (so painstaking hours of work aren't accidentally lost), an audit trail to enable earlier versions of elements in a presentation to be re-created, and keyword searching. A very useful feature of these systems when working with large, complex presentations is the ability to edit 'on the fly'.

Testing: There can be few things more embarrassing to a presenter than having a typographical or other error not be noticed until it's in front of an audience – every element in the presentation needs to be 'tested' for accuracy during preparation. Just as important though – and this is often overlooked – the final 'product' needs to be tested on an audience to ascertain whether or not it has achieved the goals set out during the design stage.

Authoring systems

CURRENTLY THERE ARE three widely used authoring systems. Perhaps the best known is MacroMind Director for the Mac ($995 from Firmware Designs, (047) 39 4288; fax (047) 39 6793), which now features an extended HyperTalk script language. Users can now easily make presentations interactive using buttons and links, control audio and video peripherals. The package also has the ability to create and animate 24-bit color graphics.

The release of the new lower-priced Mac range, means that we will be seeing an increasing number of presentations using MacroMind and the company is ready for the boom. It has announced MacroMind Windows Player which will allow presentations created on a Mac to be run on an IBM-compatible PC, as well as a three-dimensional system which will output broadcast quality (32-bit) images.

The script language, Lingo, is quite powerful in its interaction abilities. For example, users can move objects on screen during animated sequences and the software can test for user responses, whether from a mouse or keyboard, including text entry. Another powerful feature is that any object can have its own script – this gives the facility for users to 'customise' the presentation as it is shown.

Commodore's Amiga offers the most cost effective means of developing multimedia presentations. Because the Amiga has built-in sound synthesis and optional stereo speakers, specialised graphic functions and multitasking, it is a fairly straightforward process to link them all together. That is what AmigaVision does – think of it as a glorified batch file creator and editor.

Once the material is prepared using one of the many paint, animation, audio and text editing programs available for the Amiga, AmigaVision is used to prepare an icon-based outline of the presentation. The icons can represent files, video, graphics, sound, animation or text items, as well as programs and commands.

While multimedia is well-established in the Mac and Amiga worlds, it is just hitting its stride on IBMs. This is because IBM designed very little into the PC – everything has to be developed by third parties and added on. This is where DVI come into it. In late '89 the company began shipping the Pro750 Application Development Platform, comprising a '386-based system with seven boards added in and a 40Mb hard drive.

Ideas need to be presented in a logical and natural fashion for them to be retained by the audience.

DVI are now shipping a two-board system: the ActionMedia 750 Capture Board ($2687 untaxed) is used to capture audio and video and convert them into digital data and the Delivery Board ($3118 untaxed) is used to compress and decompress the data and play it back.

One of the problems for potential developers on the system is that the authoring and production tools supplied by DVI require extensive programming in C. Fortunately, there is now an authoring system – Authology: Multimedia – from CEIT with a windowed interface, menus, flexible worksheets and dialog boxes. At the moment, this is the only system that can integrate all six multimedia media. The animation system allows variable timing, multiple image sequencing and multiple concurrent animation.

In terms of effort and money, the cost of multimedia presentations is still high when compared to slides and overhead transparencies. This is rapidly changing, however. Users have discovered that in many cases there is no better alternative – industrial training for those who are illiterate or who don't speak English, for example – and many corporations are turning to it. This will encourage development of the systems – in fact we can expect to see standard PCs with multimedia capabilities built-in in the next several years. □

Sydney-based AVO Electronics is developing a multimedia package for real estate agents. Users select a price range and neighbourhood they are interested in, and images of the homes that match can be displayed along with details such as parking, number of rooms and type of construction.

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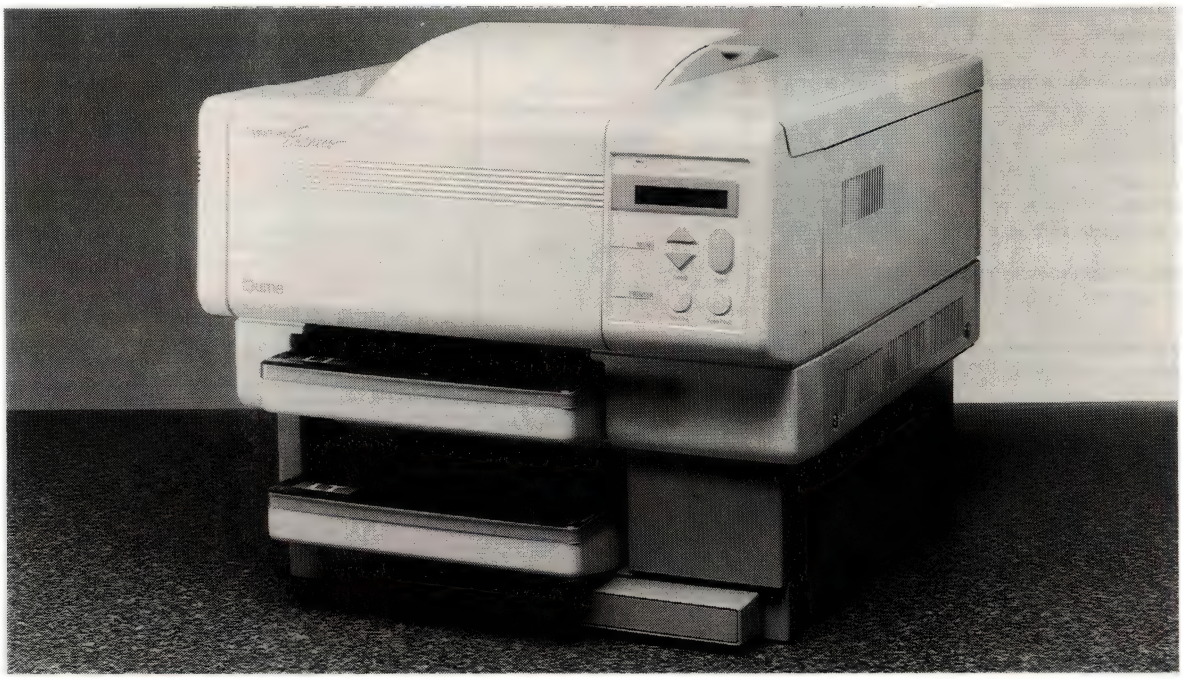

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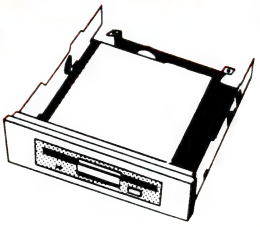

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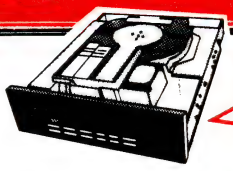

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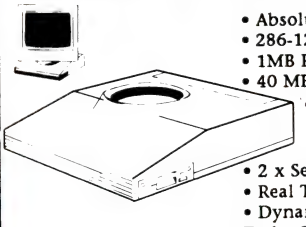

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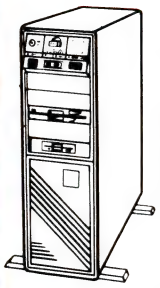

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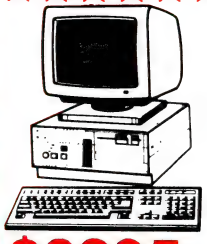

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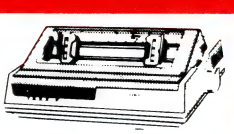

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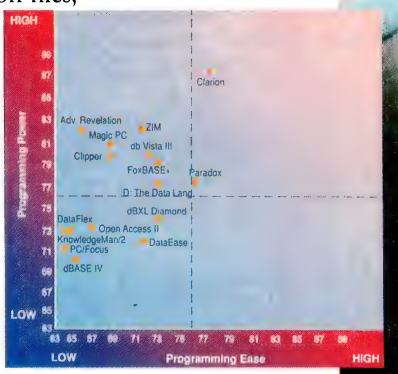

Here's what American corporations in a PC Week survey thought of the power and ease of use of Professional Developer vs. competitors. Any questions?

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Queensland Computer Expo

Jake Kennedy is looking forward to a few days in the sun checking out the Queensland computer industry.

Eagle's new DMAC 486/25AT could be the answer to your multimedia dreams especially coupled with the portable CD-ROM drive Eagle will also be showing at Brisbane's Computer Expo.

I'VE BEEN ATTENDING computer shows for a few years now and, here in Australia, the one that I think consistently has the best feel to it is the Queensland Computer Expo – I always return to Sydney feeling that the computer industry really *is* dynamic. The PC shows in Sydney and Melbourne usually make me just feel tired – that's probably because everyone in the computer industry in those two cities takes everything so seriously, while in Brisbane the áttitude is much more relaxed.

There are several other reasons I prefer the Queensland show. One is that, when visiting stands, there is a much better chance of meeting the developers of the products on show; a second is that many of these products are aimed at a very specific vertical market, generally based on local industry. Another reason is that I am more likely to be able to speak with a company's owner to gain perspective on the industry, rather than a salesperson seconded to wo/man the stand. And then there's the kids – they've been banned from most computer exhibitions now, but, Rob Woodland, the organiser of Expo, has resisted pressure from some exhibitors so they'll be there again this year.

While many kids are only interested in games of the arcade variety, there is a growing number who are interested in the potential for creativity and just 'doing things' that PCs can offer. Last year, I watched a young chap master Deluxe Paint on an Amiga at one of the stands: I observed him on and off over several hours and couldn't help but notice his delight when he was able to 'create' something new and wanted to know more about the package and the Amiga. Another sight that I still remember is how the face of a four-year-old lit up when her dad showed her how to play music on an Atari.

These are the users of tomorrow – give them toys like Deluxe Paint or Outline Art for the Atari or HyperCard on a Mac or even a desktop publishing package on a

plain vanilla clone, and the potential of PCs for the rest of us is going to grow greatly as this generation becomes demanding users and creative developers.

And besides – November in Brisbane is beautiful!

New releases

ONE OF THE new products that I'm looking forward to seeing is Eagle's '486 system from DMAC. A landmark of 119MHz and 8Mb of RAM makes this a very workable 'multimedia' solution, particularly since Eagle are now also distributing a *portable*, battery-powered CD-ROM drive (with an optional interface it works with Macs, too).

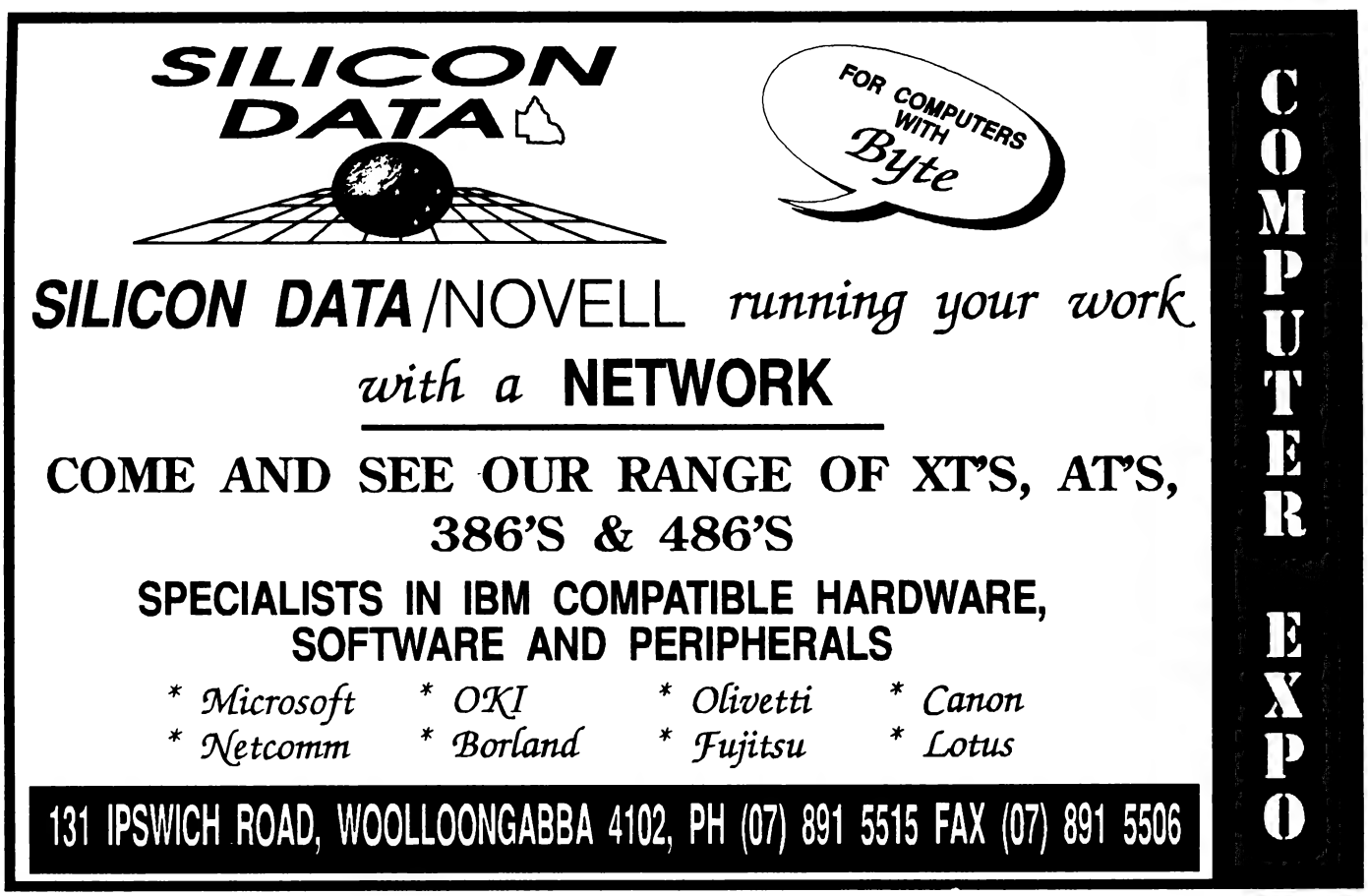
If you're looking for colorful images to fill a CD, another new release is ColorRix, a VGA paint program that can import and export a variety of Targa and TIFF formats, as well as PCX/PCC, Gem image and GIF files and there is a conversion utility availble for SCODL files. At $299 it's good value, since it is also a comprehensive drawing package and supports Super VGA. Look for the Atari PCs at the Expo: I understand there will be a ColorRix demo on show there.

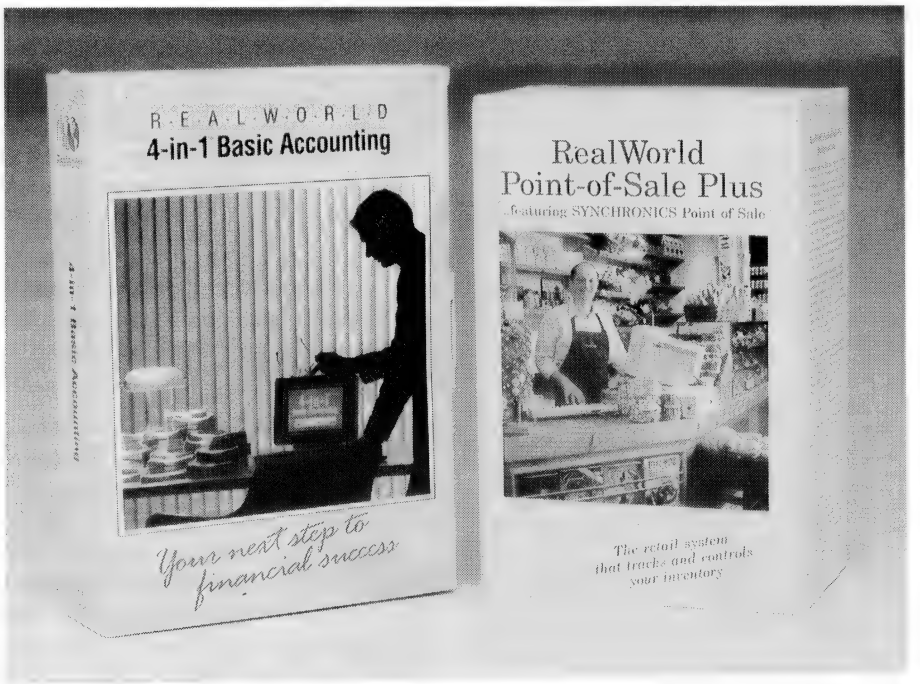
If you've been wondering about the potential of CDs, look for Ramware's stand. The company offers a complete collection for computer software on compact disk: from an 800 program PC-SIG library to the Microsoft's Bookshelf. One of the latest additions to the range is all 21-volumes of Grolier's Encyclopaedia, pictures, captions, footnotes and bibliographies included.

If a '486 system is beyond your needs, Panther's 33MHz '386 is worth a look. It uses a motherboard from Mylex that can take 32Mb of RAM on board and has a 128K read/write cache. A system like that needs some add-ons to make use of that power, so there are 8 free slots (a mixture of 16- and 32-bit depending on the configuration) to plug into and an optional SCSI controller that supports seven devices.

Or, if you are currently running a '286 and have been thinking about making the move to Windows, but have had second thoughts because that would probably entail upgrading to faster machines, there's a home-grown alternative. Clive Smith-Stubbs at Hi-Tech has developed ATDos, a Dos replacement that takes full advantage of the 80286's protected mode (as far as I know, only OS/2 has a similar capability). ATDos supports up to 16Mb of RAM and multitasking and uses a GUI interface. Because of the Dos emulation built-in to the system, most Dos applications will happily run two or three at a time. I say 'most' because ATDos is only hot out of the developer's oven and is still being compatibility tested. It won't be ready to show in early November, but if you're interested, ring Hi-tech on (07) 300 5011.

One area that has been of interest to us here at *YC* lately is uninterruptable power supplies (UPSs). We are making the move to networking and desktop publishing; as a result we have been evaluating UPSs for the office. Usually, that means big bucks. However, the lads at Silicon Data tell me that they've got something really new in this area: a smart UPS on a plug in board priced around $300 – it's 'smart' because it remembers where you were when the power went down and returns you there on re-power up. They hope to have it up and running by Expo-time; if not, it will be ready shortly thereafter.





For small businesses RealWorld's point-of-sale system can be a boon – no more inventory headaches. The company also offers accounting 'solutions' for a variety of problems.

Something I recommend to all users who have occasion to transfer programs of unknown antecedents to their PCs, is some form of active virus protection. One of the best protectors was developed by Roger Thompson's Leprechaun Software (he's the man we at *YC* turn to if we have any problems in this area). Virus Buster is one of the most comprehensive such programs we've seen and offers the advantage of having updates downloadable from Leprechaun's bulletin board. One of the company's recent successes is the huge construction group John Holland – that company has recently installed Virus Buster on its 250 PCs. If you want protection or a cure for infected disks, Virus Buster will be on Delta Office Equipment's stand.

If you are a small business owner and have realised the benefits that computers can bring to the bottom line, it might be time to think of a point-of-sale system. These are generally fairly high-end systems tailored for big stores, but RealWorld software are offering a new system designed with small retailers in mind. For under $1700 (plus a PC) you can be up and

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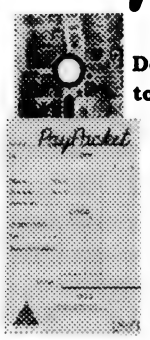

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running – no more losing sales because you run out of stock of an item unexpectedly! Peripherals such as cash drawers, customer displays and bar code readers can be added optionally. RealWorld also offer an accounting 'solution' for small businesses, so have a word with John Crew: he's probably heard your problem before and can suggest how to solve it.

And – if you are paying wages for help in that small business and have wrestled with payrolls, Brett Reed at Logisoft is the man to speak to. His PayPacket software, now up to version 3.5, was written entirely here in Australia. This means that facilities for handling our peculiar tax laws are built-in, including tax file numbers and local tax co-efficients. RealWorld also sell a banking package, Fast Bank, that enables wages to be transferred from the company's account to employees'.

I've only mentioned a small part of what you'll be able to see at the RNA Showground, November 7 to 10. The list of exhibitors and products that will be shown is comprehensive to say the least. If you've got a problem in the office, this is the place to find how to solve it! □

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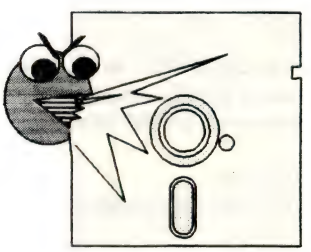

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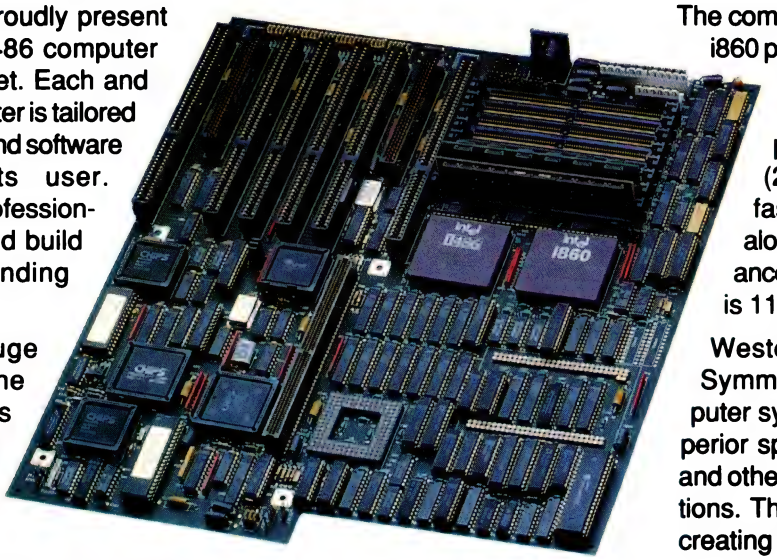

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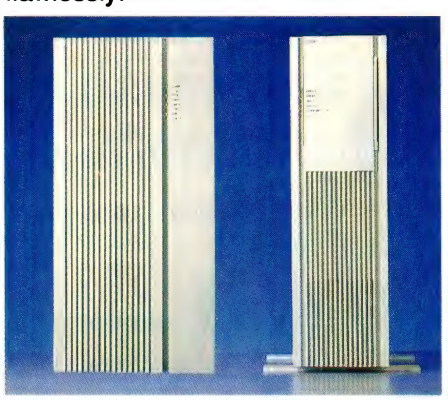

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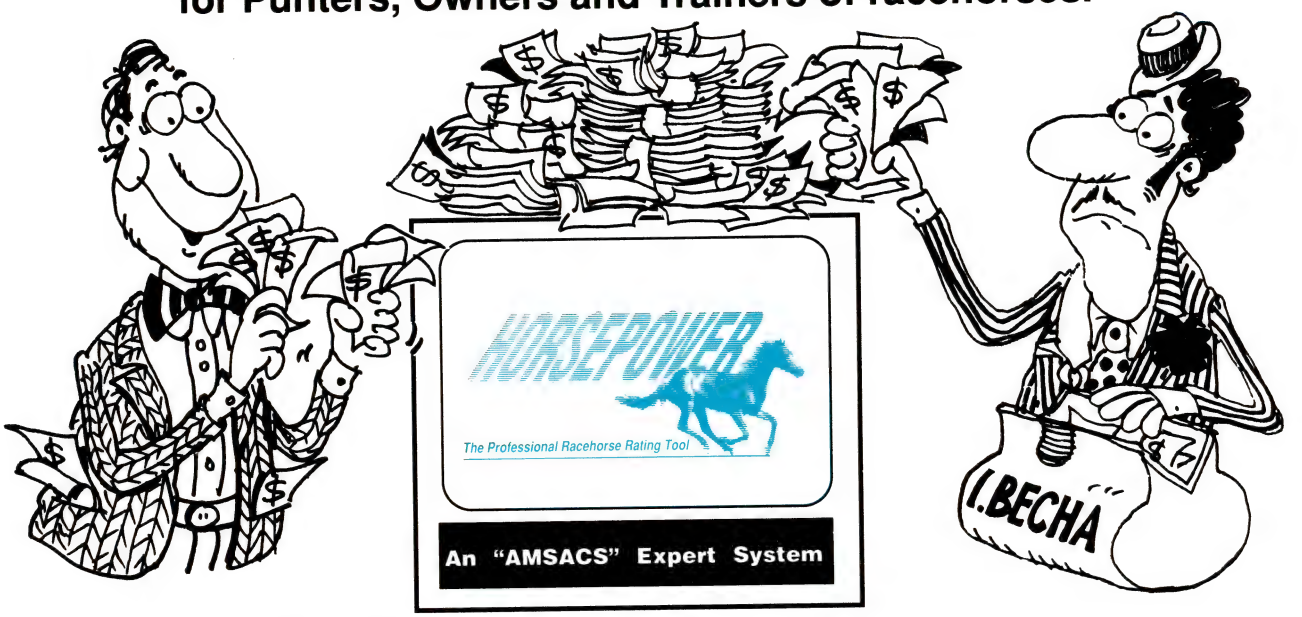

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MOBILE MEGABYTES

With hard disks growing in size almost by the day, an effective backup system is more important than ever. Mark Cheeseman considers four alternatives.

FOR ALMOST ANY type of serious computer use today, a hard disk is a necessity – their speed and storage capacity make working from floppy disks, at best, a slow and tiresome process, and frequently an impossible one. However, there is often a need to be able to move large amounts of data from one computer system to another, or remove it for archiving or security purposes.

Many people would be familiar with the sight of large washing machine-like monsters churning away in the inner sanctum of large computer centres. Spinning a stack of 15-inch aluminium platters at speeds of several thousand rpm, these 'Winchester' drives enabled large amounts of data to be mounted when required, much quicker than could ever be managed by a fixed hard disk and tape drive.

The presence of these removable drives was a large part of the reason that computer rooms needed a filtered air supply – even a small dust particle could, if caught between a head and the disk surface, cause irreparable damage to both. This is the main problem facing users of removable media drives – keeping their operating and storage environments clean. A number of solutions to this problem have been tried over the years, from the flexible disk used in the Bernoulli Box, to complete removable drive assemblies, which keep the disk platters in a sealed enclosure, in the same way as a conventional hard disk.

Smaller removable hard drives have been available for some time, but they have one important disadvantage compared to Winchesters: they are not hermetically sealed. This makes the heads and platters prone to damage from airborne particles, which is why computer rooms protecting those big drives need to have air as clean as possible.

A rather clever approach to this problem is to keep the platters sealed in their protective case, and remove the entire drive from the computer. The first PC to do this was Tandon's Data Pac range, which included internal and external drives, and complete PC systems incorporating these drives as the main mass storage devices.

So, at the end of the day, you could remove your entire operating environment – operating system, software, and data, and lock it safely away, or take it home with you. With a similar system at home, it is a simple matter to remove the disk from the machine at the office and you can continue work at home, without having to manually copy all the needed files to floppy disks.

The other obvious advantage is security – while the computer is in your office, your data is safe from prying eyes, and protected from disaster. If your office burns down, or is burgled, the computer is replaceable. Your data may not be. Ironically, one of the first Tandon Data Pac machines to arrive in the country was destroyed when *Your Computer's* office burned down a couple of years ago.

Stanilite has similar disk packs, ranging in size from 42Mb to 200Mb, with a 320Mb unit slated for release some time this month. An external enclosure accommodates one or two disk packs, and is available for IBM PC (ISA), Micro Channel (MCA), and Macintosh computers.

The drives have a claimed access time of 10 to 20 milliseconds, and incorporate 32- or 64K of cache memory. Their shock rating when not operating is 40 to 60g, although I don't know how far above a concrete floor that equates to. For more information, contact Stanilite Electronics, on (02) 646 4011.

Also available from a number of sources are removable carrier frames, which allow conventional 3.5-inch hard disks to be used as removable drives, albeit with

some limitations. First of all, they should not be inserted or removed with power applied to the computer, for the same reason that any normal (non-removable) device should not be connected or disconnected while in operation. For starters, the computer will not be expecting a drive that it thinks is non-removable to be removed mid-stream, and to do so could cause loss of data. Also, the electronics in the drive and controller are prone to damage if the connections are made in the wrong order.

These assemblies do not protect the drive against physical shocks either, so the drive and carrier assembly should be treated in the same way as an ordinary hard disk – very carefully. However, they work out a lot cheaper than the special ruggedised numbers discussed earlier, and are an ideal way to share a hard disk between two computers.

Byte Link, (02) 725 6211, have such a product, which is available in two versions – one for standard MFM and RLL drives, while the other suits IDE drives. A key lock secures the drive carrier in the frame, to prevent unauthorised people from removing the drive from the computer, yet allowing you to remove it when desired. Because these carriers accommodate standard drives, you can upgrade the capacity of the drive at a later date, and take advantage of higher capacity drives as they appear on the market.

Bernoulli Box

THE IOMEGA BERNOULLI Box is not new, having been around since about 1982. The current model, the Bernoulli Box II, is available in 20- and 44Mb variants, either as an internal mechanism, which has the standard 5.25-inch half-height form-factor, or an external subsystem with one or two drives. A half-length 8-bit controller card can control one or two drives.

The disk cartridges look like a cross between 5.25- and 3.5-inch floppies, with the size of the former, but with a self-opening shutter protecting the disk surface similar to that found on conventional 3.5-inch disks. The disk contained within this protective jacket is actually two single-sided disks back-to-back, and rather than being solid aluminium platters, they are flexible similar to floppy disks – see Figure 1.

While access to files stored on tape is strictly on a sequential basis, tapes have a distinct advantage over most disk drives - capacity.

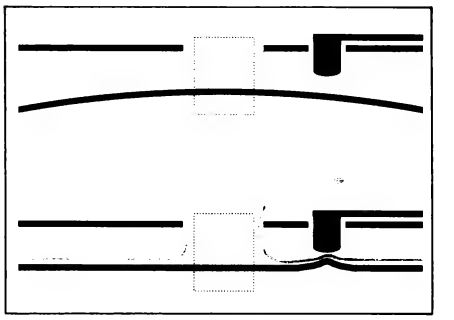


Figure 1. *As the disk in a Bernoulli Box spins, air is pumped over the disk, so that they 'fly' close to, but not touching, the read/write head, according to the Bernoulli effect (hence the name). If a dust particle lands on the disk surface it will disturb the air flow, causing the disk to safely drop away from the head, preventing a crash.*

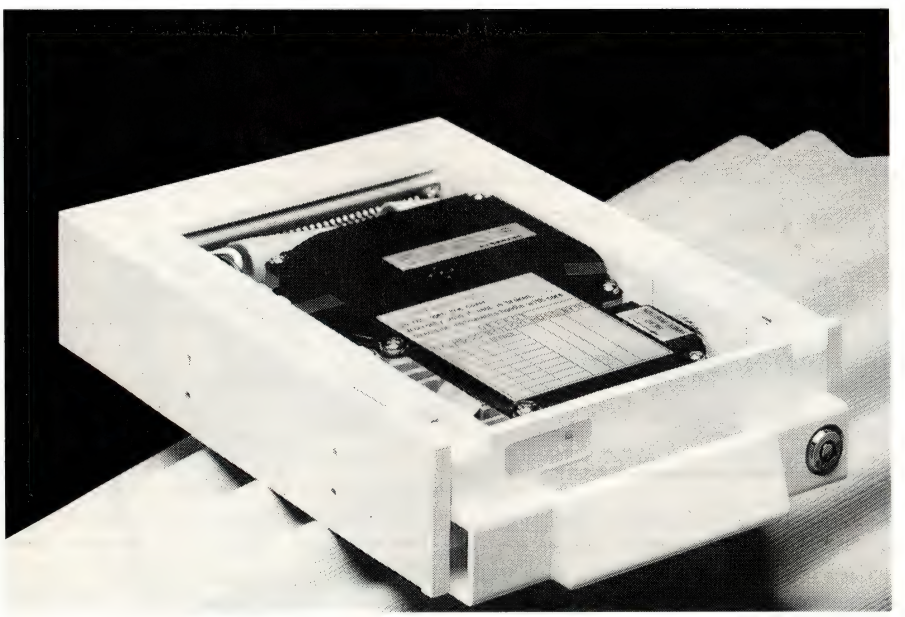
As the disk spins, air is pumped over the disk, so that they 'fly' close to, but not touching, the read/write head, according to the Bernoulli effect (hence the name). If a dust particle lands on the disk surface it will disturb the air flow, causing the disk to safely drop away from the head, preventing a crash.

The drives themselves are available as both internal and external units, with the former adopting the standard 5.25-inch half-height form-factor, and the latter mounted in a box designed to be mounted between the system unit and the monitor lifting the latter up by about two inches. The external drive box contains its own power supply, and connects to the interface card via a massive 37-way cable.

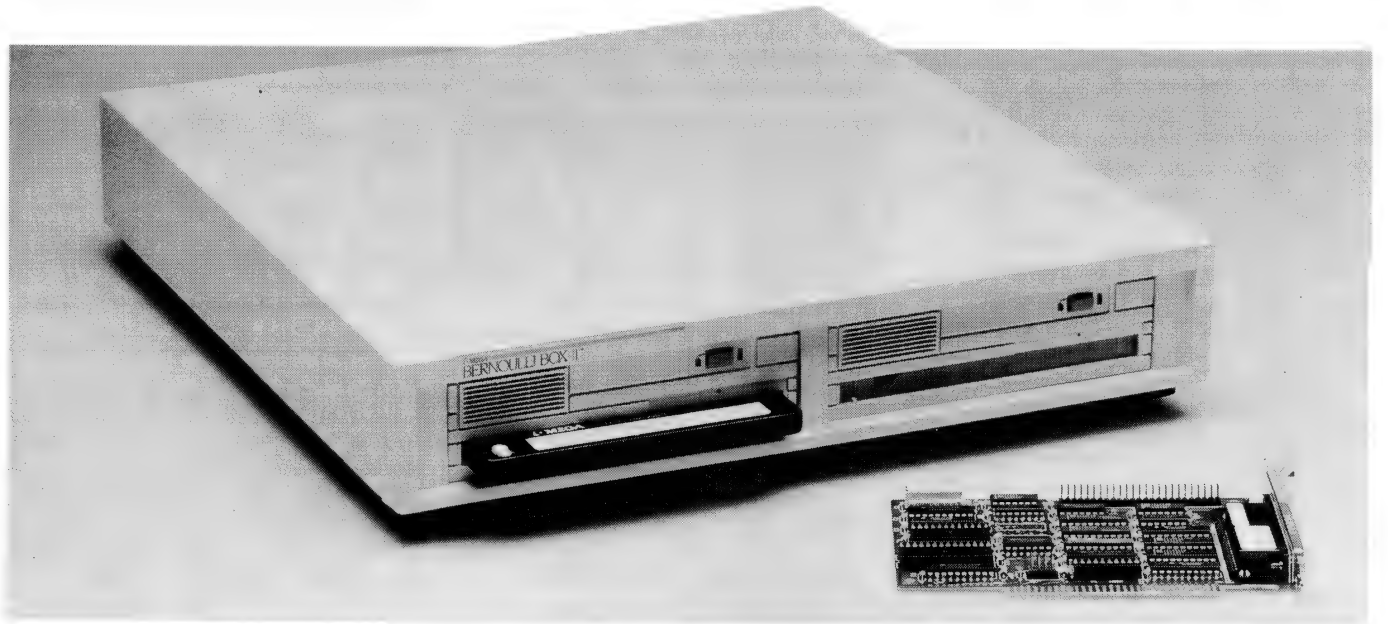
The installation procedure is simplified by a clever piece of software, which is run on the target computer before installing the card, and displays on screen how to set the switches on the card – not exactly self-configuring, but it is a lot easier than trying to determine which addresses and interrupt lines are free in an unfamiliar system.

The installation procedure also installs the driver and utility software, which performs various operations with the Bernoulli Box disks, such as formatting, backing-up and restoring the main system hard disks, and copying one disk to another (the equivalent of the Dos diskcopy command).

The device driver is installed in the Dos device chain in the usual way via the config.sys file, and the Bernoulli drives are assigned drive letters starting with the next available one after all the standard Dos



Byte Link distributes this assembly, which allows an ordinary 3.5 inch ST402 or IDE hard disk to be used as a removable drive. A key lock prevents unauthorised removal of the drive from the computer.



The Bernoulli Box uses flexible disks in a protective cartridge, and is available in a range of single- and dual-drive systems, with capacities of 20- or 44Mb per disk.

devices are assigned their usual names. So, if you have two floppy drives and a hard disk as C:, then the drives will be assigned the identifiers D: and E: (for a dual-drive Bernoulli Box system). The drives can then be accessed as easily as any normal Dos drive, except that the format command does not work – you have to use the supplied utility software to format new disk cartridges.

Assessing the access time of the drive proved difficult, although it appeared to be about the speed of a slowish (40 to 60ms) hard disk. The supplied backup utility copied an entire 20Mb hard disk in a little over seven minutes. This is a hell of a lot faster than xcopy could do it (xcopy was still going after 15 minutes before I got sick of waiting and hit Ctrl-Break). An interesting point is that formatting a blank cartridge took about the same time as backing up a hard disk to it. This tends to imply that the supplied backup software is capable of working as fast as the Bernoulli Box hardware itself.

Since the Bernoulli Box behaves in the same way as any other disk drive, its use is much more flexible than tape drives, which are strictly limited to backup and archival purposes. Data stored on cartridges can be accessed directly from any software, without having to be first restored to a hard disk, although this requires the backup to be performed with ordinary Dos file operations rather than the supplied backup/restore software utilities.

Tape drives

MAGNETIC TAPE has long been the primary method of archival storage for valuable computer data – what sci-fi computer room would be complete without a bank of whirring tape drives? Of course, in reality, half-inch 9-track tape is well established as the standard way of storing large amounts of data off-line. Half-inch open-reel tape has its disadvantages for PC uses. It is bulky, and so are the drives – a single half-inch tape drive is bigger than many contemporary PCs.

As the disk spins, air is pumped over the disk, so that they 'fly' close to, but not touching, the read/write head, according to the Bernoulli effect

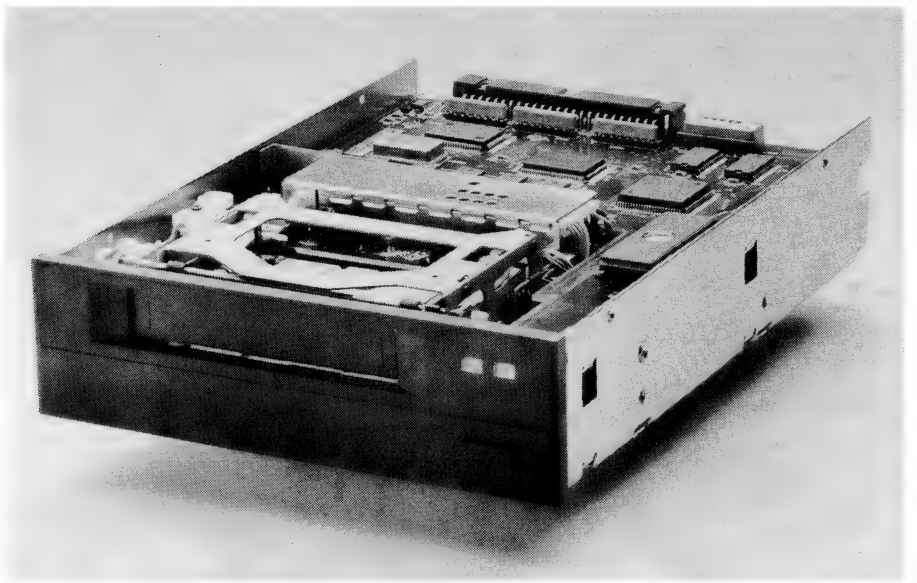
They are also complex, with elaborate mechanisms to load the tape from the reel, run it past the heads, and onto the take-up reel. It also has to be fully rewound before it can be removed from the drive. Oh, and they're not cheap either, with models suitable for PC interfacing costing US$2000 to 3000.

There are two ways that a tape drive can be connected to a PC. The easiest, and least expensive, is to connect it to the second drive connector on the floppy controller cable. However, there are two limitations with this approach. The most obvious one is that you've reached a dead end if you already have two floppy drives. In this time of transition from 5.25-inch to 3.5-inch floppies, machines which need both drives are pretty common. Apparently some floppy controllers *can* control two floppy drives as well as a tape drive, but they are very much in the minority.

The other problem is the lack of speed. The floppy drive controller in XTs is limited to 250kbps (kilobits – not *bytes* – per second), while AT controllers can run at 500kbps. However, some tape drives are capable of running much faster than this although, of course, you pay for this extra speed. Such drives also need their own controller, which solves the problem of choosing between a second floppy drive or a tape drive.

However, a tape drive on a floppy controller is still faster than backing up onto floppies. It is more convenient too, since you don't need an operator sitting by the computer for an hour or more feeding disk after disk into the machine, and keeping the whole lot in order.

The drive we evaluated was a 60Mb floppy-controller type drive from Alloy, (03) 561 4988, one of the 'old hands' in the PC backup business – our 1977-model Compupro CP/M machines had an Alloy drive shared between them, which stored



For really huge storage capacity, you can't go past a DAT drive. This Everex unit stores a whopping 1.2 gigabytes on a single tape cartridge, yet fits into a single half-height drive bay, making it ideal for backing up network servers.

a massive 9Mb on a QIC-02cartridge (that's one of the big ones). But at that time, the total hard disk capacity on each of those machines was only 20Mb, shared between about eight users!

For those who already have two floppy drives, Alloy also manufactures a special controller, called the FTFA/P, which emulates a floppy controller for the purposes of controlling the tape drive.

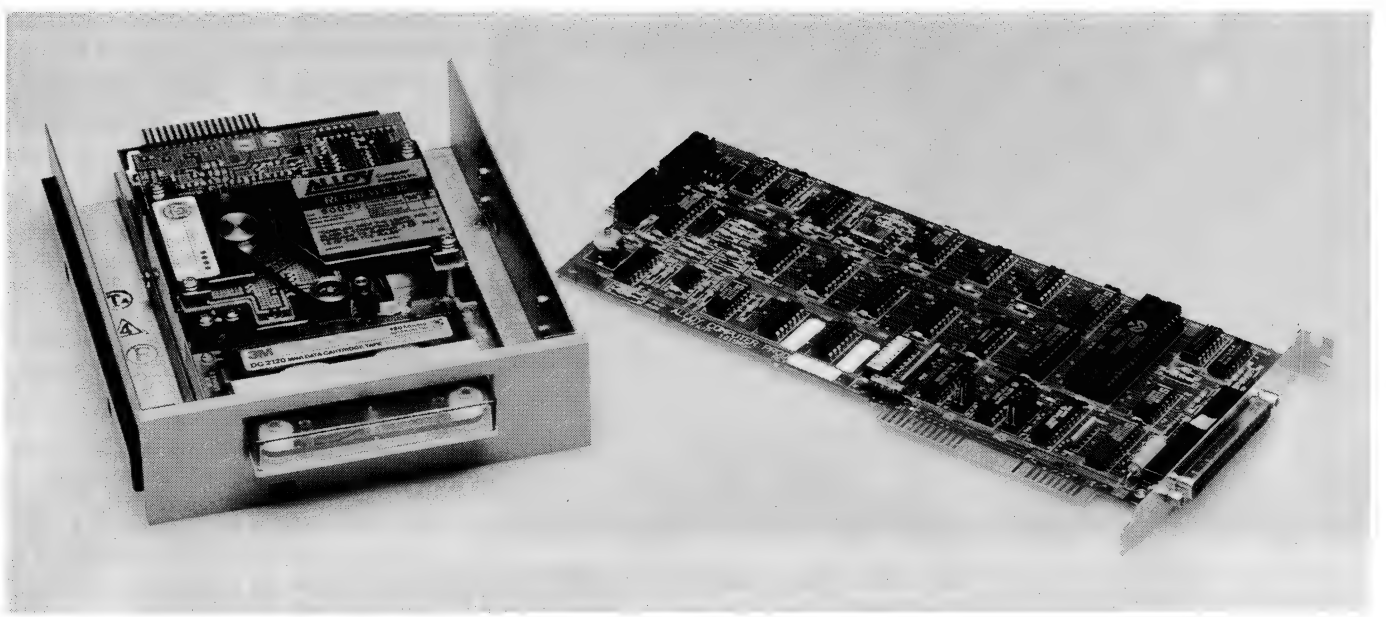
While access to files stored on tape is strictly on a sequential basis, in contrast to random-access disk drives, tapes have a distinct advantage over most disk drives – capacity. While the Bernoulli Box can store 20 or 44Mb on a single cartridge, cartridge tapes range in capacity from 40 to 1200Mb – that's 1.2 gigabytes!

Quarter-inch tape in cartridge form is the standard means for backing up most systems these days, and there are several different cartridge sizes, ranging from the QIC-40 (40Mb, although longer tapes in this size cartridge can store 60Mb), up to about 250Mb. QIC tapes have a number of parallel tracks on the tape – the higher the capacity, the more tracks it has.

The 1.2Mb capacity drives use a different technology entirely – DAT. DAT is a bit of a misnomer in this case, standing as it does for Digital Audio Tape; it really should be Digital Data Tape (DDT?), but since the tapes and drive mechanisms are the same as those used for audio purposes, the DAT label has stuck. The use of DAT for backup is analogous to CD-ROMs, which use the same technology as their audio counterparts. DAT drives are becoming popular for backing up drives on minicomputers and networks, which tend to have large drives.

The DAT tapes use the same technology which made video recording a reality – helical scanning. Rather than recording the data in linear tracks along the tape, a head drum with spinning heads reads and writes information on a series of short tracks, running at an oblique angle *across* the tape. This allows a large amount of information to be stored in a relatively small space.

The Alloy Retriever/60 stores 60Mb on a single tape without compression, or about double that figure if data compression is used. It connects to the second drive connector in a single drive system, or to the optional FTFA controller. External units are also available for systems which don't have room for another internal drive, or if one drive is to be shared among several computers.



Optical disks

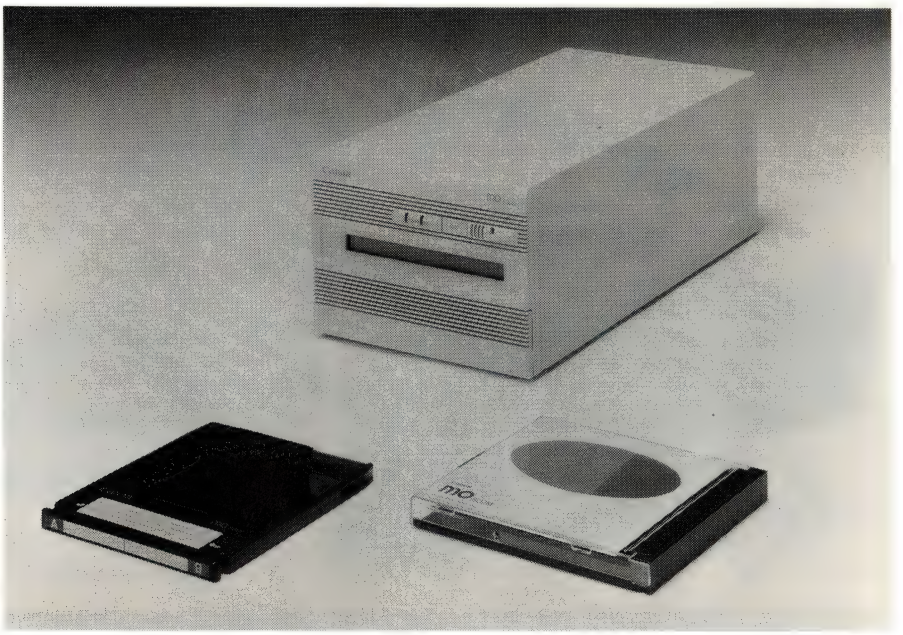
ONE OF THE more recent developments in disk storage technology is optical storage. CD-Roms were the first to become popular, based on exactly the same technology as audio compact discs. However, as these devices are strictly read-only, it is not really appropriate to discuss them in detail here.

The next development were WORM drives – short for Write-Once, Read Many (times). As you would expect from the name, a disk can be written by the same drive that reads it, but erasure of previously written data is not possible, so the disk is not re-usable. This is great for archiving and accounting applications, as the write-once nature of the disks means that a complete unalterable audit trail exists.

When the NeXT computer was released in 1988, one of its more unusual features was the use of a magneto-optical (MO) drive as its primary mass storage device. This drive, made by Canon (who happen to be major shareholders in NeXT, and world-wide agents for the machine), is also available as an external SCSI device for use with PC compatibles and Macs.

The disks look similar to a double-sided version of a CD, and are permanently enclosed in a rigid cartridge. Although double-sided, the drive can only access one side of the disk at a time – to use the other half of the disk's 512Mb capacity, the cartridge needs to be physically removed and turned over.

Although the removable nature of the disk made its use as the standard storage medium in the NeXT unusual, it also brought criticism for its sluggish access time, and for disk-intensive applications a conventional hard disk is really required. However, the MO drive excels at backing up and moving large amounts of data, and for simple data retrieval applications (such as Canon's Friday document storage system, which also uses the drive), access time would not normally be a problem.



Canon's magneto-optical drive stores 256Mb on each side of its rewritable disks, and is standard equipment in the NeXT cube and Canon's document retrieval system – Friday.

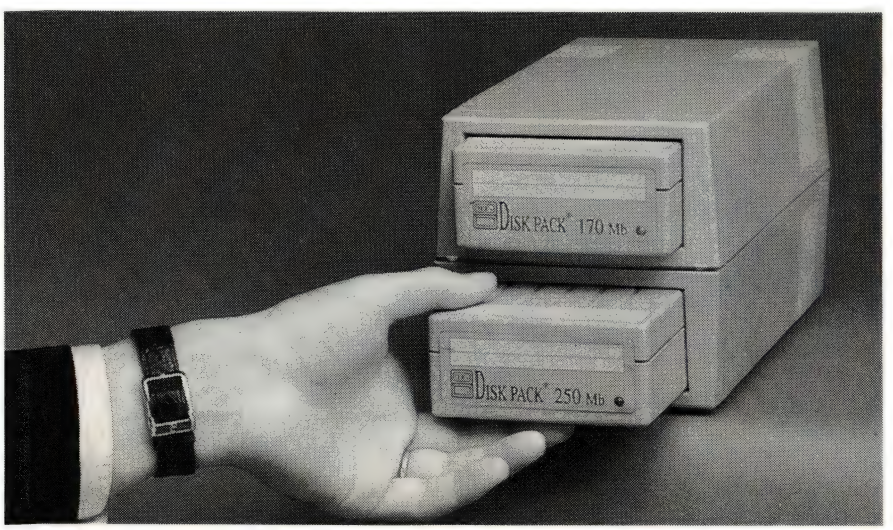
The basic drive retails for $5595 (inc. tax), and to that the price of an interface kit needs to be added – $245 for the Mac, or $495 for the PC. Each disk is priced at $345 for 512Mb, which works out at only 67 cents per megabyte – that's cheaper than floppies. For more information, call Canon, (02) 888 0166.

Which one?

DECIDING WHICH solution best suits your needs is not that difficult – each type of technology having distinct advantages and disadvantages. For backing up large hard disks for protection against theft or fire, a tape drive is the most cost-effective solution. However, restoring a single file from the tape will take a long time, owing to the sequential nature of tape access.

The range of drives and tapes on the market mean that there is bound to be a size suitable for a particular application, from small 40Mb units up to the massive capacity offered by the DAT drives.

A removable hard disk, Bernoulli Box, or magneto-optical drive all allow random access to their contents, but cost significantly more than tape drives. Again, the actual choice depends on the capacity required, and the intended application of the drive. For archival purposes requiring a large number of backup sets to be kept, a magneto-optical drive will work out a lot cheaper than an equivalent number of removable disk packs. □



Stanilite has a wide range of removable disk packs, ranging in size from 42 to 320Mb, suitable for ISA, Micro Channel, and Mac computers

SMALLTALK 'OBJECT-ORIENTED'

Smalltalk/V is a programming language for developing solutions to both simple and complex problems. It has been successfully used for simulation, expert systems, computerised typesetting, and integrated programming environments. You can edit and install small code fragments without lengthy compile and link sessions, building a program piece by piece and seeing the results immediately. You can experiment with bits and pieces of a program long before it is complete, exploring ideas, structures, and algorithms as the program takes form. By not requiring traditional techniques (extensive pre-planning, flow-chart analysis etc.), it is ideal for complex problems whose solutions may not be reachable through such traditional methods.

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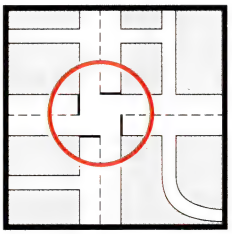

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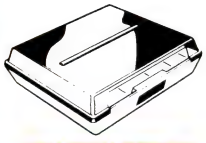

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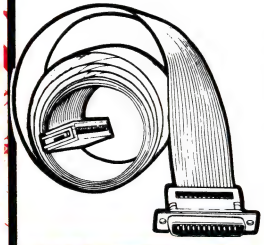

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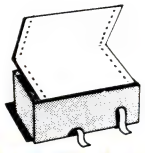

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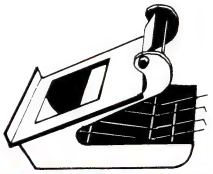

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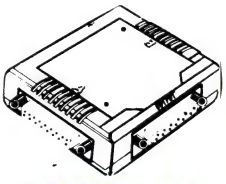

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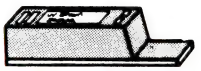

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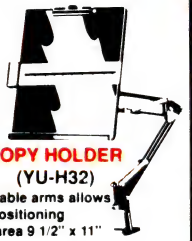

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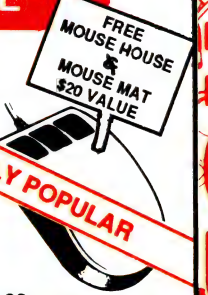

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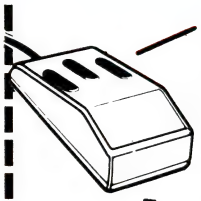

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- High resolution movement of 195 dots/inch. Smaller table space and less hand movement required
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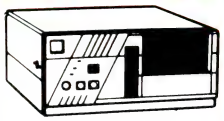

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Small footprint. Features security key switch, 8 slots and mounting accessories
Size: 360(W) x175(H) x405(D)mm

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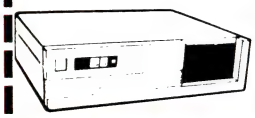

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This mighty little XT motherboard has 8 expansion slotsand uses 5 low cost RAM chips to provide a full 640K memory.
The ASIC chip well known for its reliability is also used.
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MEMORY SIZE	D RAM
128K bytes	424256 x 1
256K bytes	424256 x 2
384K bytes	424256 x 3
512K bytes	424256 x 4 or 421000 x 4
640K bytes	424256 x 5 or 421000 x 4 + 424256 x 1

CAT X18037

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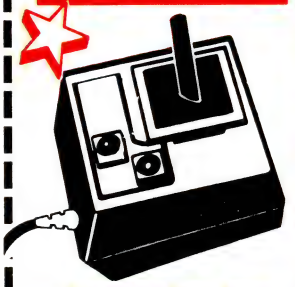
JOYSTICKS



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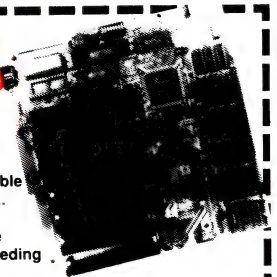
THE FASTEST XT TURBO 31MHz XT MOTHERBOARD



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PERFORMANCE INDEX NORTON'S SI, V- 4.0

	1	2	3	4	5	6	7	8	9	10	11
X18036											
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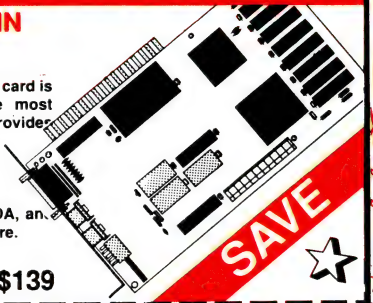

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NEW CONNECTIONS

EDITED BY
MARK CHEESEMAN

The Complete Fax

FOR THE LAST couple of weeks, I've had a new toy to play with – a portable fax modem. Most readers will be aware of the existence of fax cards, internal expansion boards which allow a PC-compatible computer to send and receive fax messages to and from ordinary fax machines. There are distinct advantages and disadvantages of computerised facsimile, compared with conventional stand-alone machines.

The fax modem I am using is not an internally-mounted PC expansion card, but a self-contained battery powered box a little larger than a pack of cigarettes (the cigarette pack appears to have surpassed more conventional units as the standard unit for pocketable items), and is called The Complete FAX/Portable.

This box contains a 9600bps fax-compatible auto-dial, auto-answer modem, and is battery-powered, for complete portability, although a supplied plug-pack adapter allows the use of mains power where this is available. In line with its expected use as a portable device for use with laptops, the serial connector is a DB-9 type, almost universal on laptops, although a 25-pin adapter is also provided to facilitate its use with desktop machines.

All of the intelligence of the fax modem is in the driving software, which is of course supplied with the modem. The software is fully menu driven, and provides for easy control of outgoing and incoming fax messages. Text files may be automatically converted to fax format prior to transmission, or converted manually beforehand.

The fax software consists of two main parts – a terminate and stay-resident (TSR) component, which sits quietly in the background until required by an incoming fax, or a pre-scheduled fax transmission. While operating in the background, faxes may be printed, and files to be included in outgoing faxes converted to the special fax file format used by the fax modem.

While a fax communication is actually in progress, the TSR program jumps into the foreground, suspending any application that you may currently be using. An optional status window shows the progress of the transmission or reception, which provides the sort of information that a conventional fax machine usually displays on an internal LCD screen.

By far the largest part of the software is an ordinary foreground application, and is the command centre where outgoing faxes are queued for transmission, and received faxes can be displayed on-screen or printed out if a hard copy record is required. When no longer required, fax files can be deleted from the disk.

In addition to being able to send text files, the Complete Fax can also send various image formats, including Dr Halo, Windows Paint, PC Paintbrush (PCX), and TIFF class B formats. In addition, received faxes can be converted to any of these formats for editing. This facilitates the sending of explanatory diagrams, and the crea-

The Complete Fax portable offers full 9600bps Group III fax functionality for laptop users.

tion of custom logos to be sent with your fax transmissions. Graphics can also be scanned in using a variety of scanners, to give full fax functionality, although this relies on the availability of a standard expansion slot for the scanner card, limiting its usefulness to desktop PCs and a small number of laptops.

Outgoing faxes can automatically have a cover sheet attached, with all the necessary usual information on a page, such as the recipient's name, company, fax number. In addition, a graphic in fax format can be superimposed over the top of the cover sheet, containing a company logo, for example. One of the easiest ways to do this is to fax a blank letterhead from an ordinary fax machine to the computer, and set up the cover sheet so that this file is sent with all outgoing faxes. In this way, all faxes will be sent under your letterhead, so that they will look like a conventional faxed letter, albeit with clearer text.

Designed primarily for use in conjunction with laptops, the CFAX portable can also be used with a desktop PC. Indeed, it would be a waste to use it only while travelling. The only problem with its use is being unable to use the computer for anything else while a fax is being transmitted or received, rather than operating entirely in the background as the better internal fax cards are capable of.

There is a good reason for this – communications tasks are necessarily time dependent, and at 9600bps, many CPUs would not be able to reliably keep up with the data stream while doing something else in the foreground. Don't try any tricks like using DESQview or Windows – the background scheduling software used by CFAX conflicts with the task-switching operations of these programs.

It's a pity that a 33MHz '386 – or any PC, for that matter – has to completely suspend all other operations to communicate with the fax modem. A DESQview- and Windows-compatible version of the background program would go a long way towards its acceptance as a dual-purpose portable/desktop communications tool.

An important consideration for the computer is that it really needs to have a hard disk. For starters, the software occupies over a megabyte of disk space on its own, and fax files tend to be rather large, occupying between 25 and 40Kb of space. Also, since the software calls a number of external programs to perform various operations, a slow floppy drive will slow down the operations of the whole program. Also, the necessary file conversions which translate text and graphics files into the fax file format will be noticeably slower.

That said, I have been using the CFAX portable with a Toshiba T1000SE, with a single high-density floppy disk holding both the CFAX program files, and fax files themselves. It worked, but the sluggishness of the inbuilt floppy drive made sending a fax a tiresome process. If one was to use this combination more than occasionally, then the 2Mb Ram expansion card for the laptop would allow the entire fax program to operate from a Ram disk, with room for all the executable files and a number of fax files to boot.

As it stands, the Complete Fax/Portable is ideal for its intended application – as a fax modem for use in conjunction with a laptop for travellers who cannot bear to be out of touch with the rest of the fax machines in the world. While an ordinary data modem allows you to communicate with the office computer while on the move, there are a lot more fax machines out there than computers with modems.

The CFAX Portable is distributed in Australia by Performance Sales, on (02) 960 4900; it's priced at $899.

Internal modem for Toshiba Notebooks

SPEAKING OF THE T1000SE, Toshiba have just announced an internal 2400bps modem for its notebook laptop range (comprising the T1000SE, T1000XE and T1200XE), and it can also be used for the T1200HB, T1600 and T3100SX, leaving the proprietary Toshiba slot free. Mounting in the slot provided especially for the purpose, the modem (developed jointly by Toshiba and NetComm), complies with the relevant specifications for use in Australia and New Zealand. It gives the Notebook range a self-contained communications capability, making it ideal for travelling computer users, such as sales people and roving journalists, without adding any size or significant weight to the laptop.

Pocket modem

WHILE ON THE subject of data modems, SR Electronics, (03) 375 2274, has just shown me the Datatronics pocket modem (or Port Modem, as they call it). The Discovery 2400P Port Modem ($355) is a full-featured 300-, 1200- and 2400bps modem, compatible with both the CCITT and Bell standards, powered either by an internal nine volt battery, or an external plug pack. This, and the modem's diminutive size (125 *x* 64 *x* 30mm) make it ideal for use with any laptop with a serial port.

Modem manuals can be a little intimidating, and the one supplied with this modem is no exception: 'If the modem is reset by command Z0 or Z1, the ACA is loaded with the FDP and then overwritten by the SCP0 or SCP1, respectively.' Such statements do little to inspire confidence in newcomers to data communications, although anybody familiar with Hayes-compatible modems will find the operation of this one nothing unusual.

The rated current consumption – 100 milliamps – means that battery life will be short, at best. An alkaline battery is a necessity for any reasonable battery life, and a good alternative would be the new Kodak 'Ultralife' lithium cells (if you can find them), which are claimed to last twice as long as alkaline cells.

How things have changed. The pocket-sized Datatronics modem pictured operates at speeds of up to 2400bps – eight times as fast as the old 300bps GEC monster underneath (when it was state of the art, the GEC was used to send copy to our typesetter).

Line sharing

A COUPLE OF months ago, someone posted a message to one of the news groups on ACSnet, the Australia-wide Unix network, about sharing a phone line between a fax machine and an auto-answer modem. It won't work with all modems, but if the modem is suitable, it is virtually transparent to the calling party, and can be used with computer fax cards too.

Normally there is no problem with sharing a line for outgoing traffic – the assumption being that there is an operator in attendance who is smart enough not to try to use both at once. Even auto-answer operation of one or the other is not difficult, provided that the other device is set up to ignore incoming calls.

However, with a bit of planning, and the right equipment, it is possible to have a modem and fax card in the same computer, ready to answer incoming calls. The first point to check is the way in which the modem handles the switching of the phone line. This sort of operation requires that the modem disconnect its handset socket when using the line.

This is easy enough to check – unplug the telephone line cord from the line socket on the modem, and plug it into the handset socket. If the modem still works, then the handset socket hasn't been disconnected, and the modem is unsuitable for this application. If the modem fails this test, there is a chance that it can be modified to disconnect the handset socket when it is online, but such a modification is beyond the scope of this article (for a start, new tracks need to be cut in the PCB and a modification such as this will certainly void any warranty that the modem has, and will also invalidate its Telecom/Austel approval).

I'm not sure how many modems do meet this requirement – the Datatronics portable modem mentioned above works fine, but the NetComm 1234SA we have in *YC's* office leaves the handset connected during calls, and is thus unsuitable for this application. A Bit Blitzer 123E, which I also checked, did not work either.

Assuming we have a modem which meets this requirement, then there is a good chance that the line sharing attempt will work. First, plug the telephone line into the line socket of the modem. Then connect a jumper cable from the handset socket of the modem to the line socket of the fax modem.

Both the data and fax modems need to be set to answer after the same number of rings – I used two, since that was as low as the fax modem I was using would go. The next thing is to set the carrier-detect time-out of the modem to 15 seconds.

When an incoming call is received, both the modem and fax card will attempt to answer the call. However, when the modem goes on-line, the fax card will be disconnected by the relay in the modem. This is important to ensure that the fax card doesn't interfere while the modem tries to establish a connection.

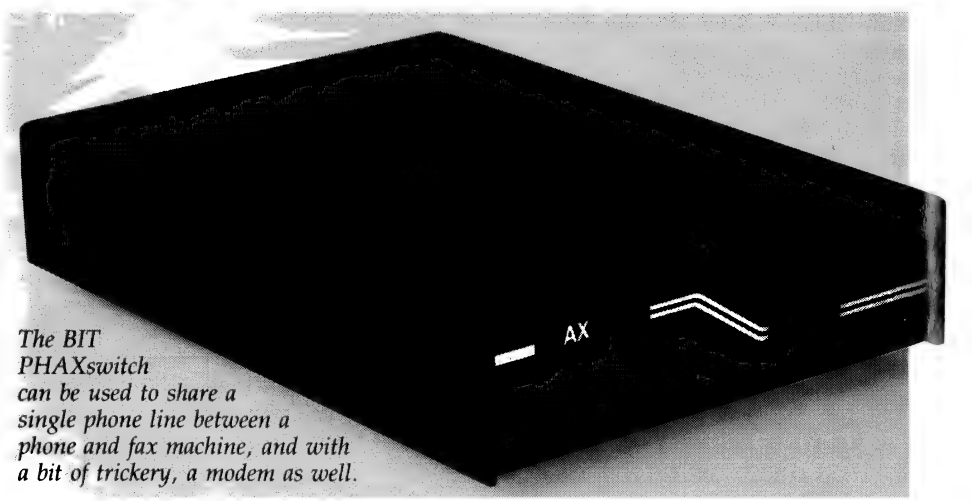
If the caller is another modem, then the local modem will stay online, and the fax modem won't be connected and will eventually time-out. On the other hand, if the call is not from a modem, then the modem will time out, and the fax card will be connected to the line. If the call is from a fax machine, the normal fax handshake takes place and reception will start.

I tried this out with the CFAX Portable and Datatronics modem, with the modem on COM1 and the fax on COM2. The background fax software is first installed, and then the comms program (Telix in this case) was run in the usual way. The only problem is that while the fax modem is attempting to answer the call, the foreground communications program is suspended until the fax software times out. This means that software which tells the modem to answer the incoming call will not work – the modem has to count the rings and answer the call itself.

Once the modem answers the call, the calling party will need to wait while the fax modem times out, after which the communication session can continue normally. Fax calls proceed normally, with the sending fax machine ignoring the answer tones sent by the modem. When the modem times out and disconnects, the calling fax will hear the answer tone from the fax modem, and the fax will be transferred as usual.

If you are using a fax card which operates in the background (or a conventional fax machine), then there will be no delay when the data modem detects the carrier, and the session can continue without having to wait for the fax card to time-out.

Sharing-ware



The BIT PHAXswitch can be used to share a single phone line between a phone and fax machine, and with a bit of trickery, a modem as well.

FAX SWITCHES, little black boxes which allow a phone and fax machine to share the same line, are popular items for small businesses who do not use the fax machine enough to justify a second line. Incoming calls are screened by the switch, to determine whether they are a fax or voice call, and then switched through to the appropriate socket.

With one of these boxes, such as the Bit PHAXswitch (pictured), a single line can be served triple duty, sharing a phone line between a fax, modem and telephone. The fax and data modems are connected together in the same way as described above, but instead of plugging the modem into the phone line, it is plugged into the fax socket on the switch. The phone line and handset are then plugged into the appropriate sockets on the switch.

Laptop MNP5 modems

THIS MONTH SEEMS to be the one for new modem releases. Energy Control has recently released a range of Xecom internal 2400bps modems for various laptop models, including the Compaq SLT/286, NEC ProSpeed 1600, Toshiba T1600, and Zenith SupersPort. What sets these modems apart from the crowd, is the incorporation of MNP level 5 data compression – popular in many up-market modems, but something of a rarity in a laptop modem, allowing the modems to achieve error-free throughputs of up to 4800bps.

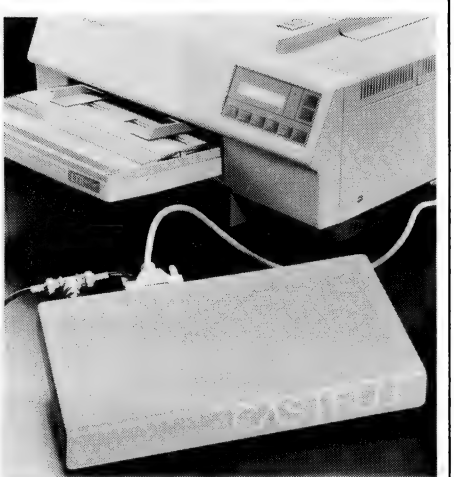
Low-power CMOS circuitry ensures the modems have minimal impact on the laptop's battery life, and battery drain is further minimised through a power-down facility. The CCITT V22 and V22bis standards are supported, in addition to Bell 103, 212 and 212A. Pricing starts at $805; more information can be obtained from Energy Control, on (07) 376 2955.

Networked fax

BEFORE LEAVING THE topic of fax, Datamatic has announced the launch of a fax server solution for Novell networks. Operating in conjunction with Novell servers running Netware version 2.0a or later, the FaxPress allows all users on the network to gain access to fax services.

Network users can fax any document in HP's PCL LaserJet format, thus retaining the visual layout of the document, rather than using simple text conversion techniques as do most fax cards for standalone applications. The PCL files are converted to fax format before being sent, and a log records the day, date, time, duration, and phone number for auditing purposes. Three levels of password-protected security allow the system administrator to limit access to the FaxPress, and control costs.

FaxPress is fully CCITT group III-compatible, and offers all the usual features of the more up-market fax machines, including automatic re-dial, broadcasting, and delayed sending. The unit connects directly to the network cable, through an inbuilt Ethernet, ARCnet, or Token Ring board, intercepting the data stream to the printer. The LaserJet printer is also attached to the FaxPress unit, allowing laser printing of incoming faxes, while file spooling is handled by the file server.



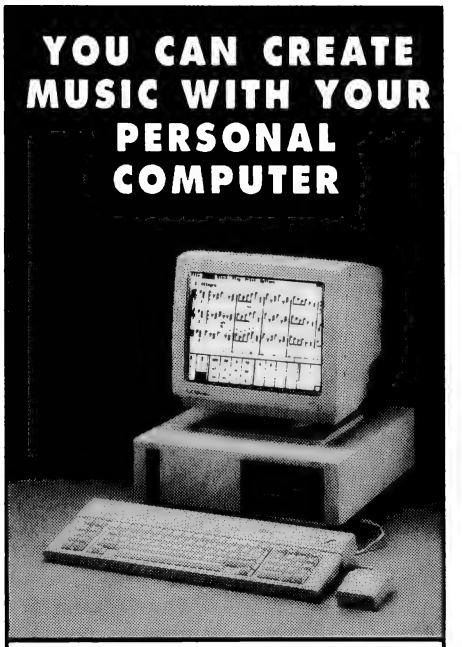
The Datamatic FaxPress provides fax services to Novell networks, converting HP LaserJet format files to faxes automatically.

[redacted]

Incoming calls are answered by the PHAXswitch, and diverted to the telephone handset, or to the modem and fax combination, which then sort out the call. If you have an answering machine, then this can be connected to the phone socket on the switch as well.

The trouble with the PHAXswitch is that if it doesn't detect the calling 'beeps' of a fax machine, it plays an internally-stored message asking the caller to say 'fax' if they are trying to send a fax (which also applies to modem calls in this case). I don't know of many modems with built-in voice synthesis, so that modem calls will have to be dialled manually. The calling party needs to dial the number with an ordinary phone, say 'fax' when instructed to, and then put the modem on-line (by typing ATD), and hang up the phone. A bit inconvenient, but far from unworkable. The PHAXswitch is available from Banksia Information Technology, (02) 418 6033.

So there you have it – a fax (or fax modem), data modem, telephone, and answering machine. All sharing the same line, and available for both outgoing *and* incoming calls. Telecom will probably never talk to me again.



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Priced at $7741 (the Ethernet version), the FaxPress is available from Datamatic, (02) 449 8133.

Windows communications

WITH WINDOWS 3.0 rapidly gaining acceptance as the user interface of choice, the number of Windows-specific applications is increasing rapidly. Microphone II is a Windows 3.0-based communications program, with capabilities far exceeding the Windows' Terminal program. Microphone's most powerful feature is undoubtedly its script programming facility, allowing procedures such as dialling up and logging on to various services to be automated. Several sample scripts are provided as standard, although most of them are for logging onto US-based services – not an inexpensive activity for the casual user.

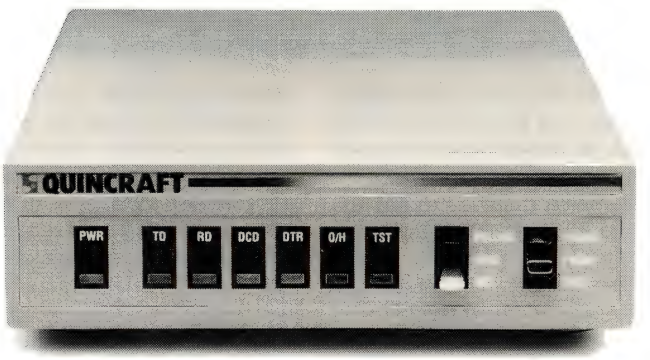
A full evaluation of Microphone II is not possible in the space available here, but John Hepworth will be looking at it in 'Windows Wonderland' in the near future. Microphone II is distributed by NetComm, (02) 888 5533, and is priced at $499.

Datacraft V.32 modem

DATACRAFT HAS just released the latest addition to its modem range – the Quincraft V.32 'managed' modem. Supporting V.21, V.22, V.23, V.22bis and V.32, with auto-ranging, it ensures compatibility with all existing modem standards. The modem incorporates MNP level 5 data compression, offering data compression ratios of up to 2:1, and is available in either stand-alone or rack-mount configurations.

A remote configuration facility allows the modem to be configured from a remote site, with two levels of security to prevent unauthorised tampering with modem settings. For more information contact Datacraft, on (02) 726 5300.

Datacraft's new Quincraft modem supports all CCITT speeds from 300 to 9600bps, and incorporates MNP level 5 to double that throughput in some cases



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Control Dynamic's low cost EM108 ROM EMULATOR can increase productivity and cut development costs.

The EM108 is an intelligent development tool capable of emulating ROMs from 1k to 256k bits with access times to 120nS. It can be powered from either 4 AA 1.5V batteries, 9V mains adaptor or through the ROM socket.

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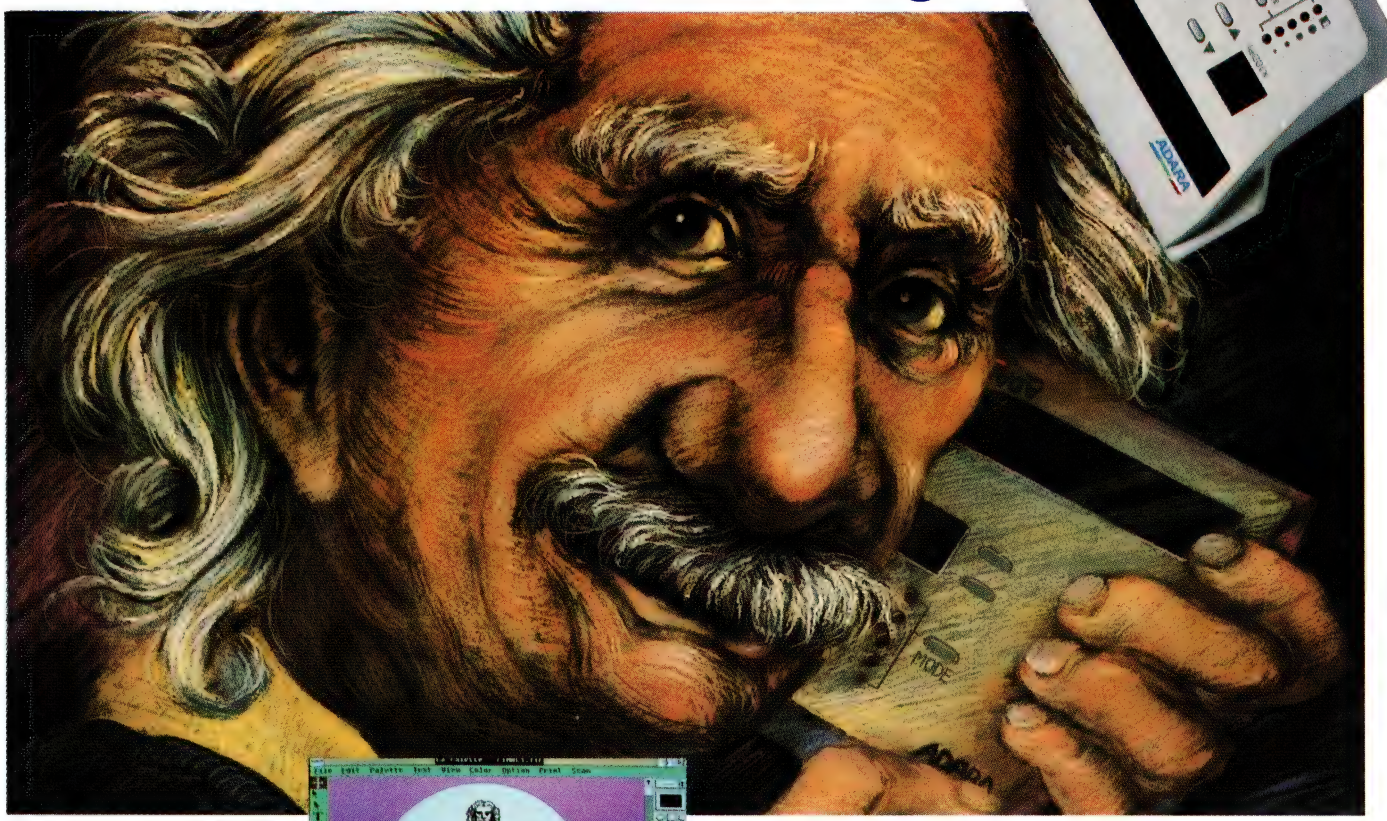
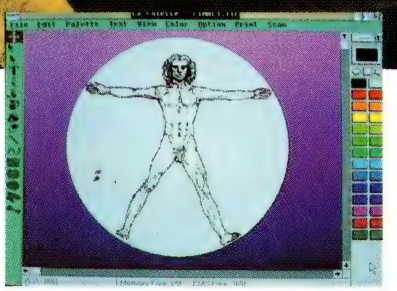




BRILLIANT COLOUR

The ADARA AHS-405C hand scanner is your PCs passport to new worlds. Whilst hand scanners have been around for a while now, the AHS-405C goes where no hand scanner has gone before. It captures images on Mono, EGA and VGA in 2, 8, 16 or 256 GLORIOUS COLOURS!

FANTASTIC SOFTWARE

LA PALETTE is a comprehensive, WINDOWS based graphics package. It supports most popular graphic formats, and has a stunning array of drawing tools. Once you have scanned an image, **IPHOTO** allows you to manipulate the image in ways not thought possible on a PC. Black and White, Grey Scale, Indexed Colour and full 24 Bit Colour images are all supported, and can be converted from one type to any of the others.

FULL SUPPORT

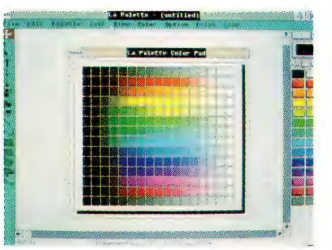
Pactronics has established a dedicated scanner support hotline, to help customers get the most from their scanners and software.

AHS-405C SPECIFICATIONS

105mm scanning width
100-400 DPI, user selectable
64 grey levels; 8, 16 or 256 colours, or mono.
2 DMA channels, user selectable
4 user addressable selections

LA PALETTE GRAPHICS

MS-Windows based graphics package
2/8/16/256 colours supported
Supports virtual page
MSP/IMG/PCX/EPS/TIF format compatible



IPHOTO IMAGE MANIPULATION

MS-Windows based programme
Supports B&W, Grey Scale, Indexed Colour and 24 Bit Colour
Translates from one format into another
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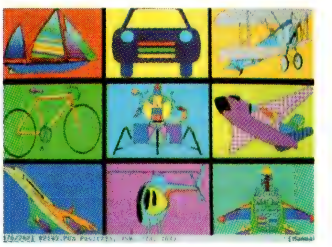
Manipulate contrast, brightness, hue and saturation levels Supports MSP/IMG/PCX/CUT/TIF/EPS formats



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ELECTRONIC BIBLES

COMPUBIBLE/GENESYS, COMPUTER BIBLE AND THE NAS COMPUTER BIBLE

The Rev Dr David Parker describes three aids to the time-consuming task of finding or checking Bible references.

COMPUBIBLE has the reputation for being one of the best of the current generation of computerised Bibles. However, competition appears to have had its effect – Genesys is now included in the price, not an extra $99 as it was before.

CompuBible's reputation is mostly well justified – it has five different Bible versions available. Up to four windows can be opened on the screen at the same time, and Genesys is both efficient and easy to use, and the searching facilities (including CompuBible's) are comprehensive. However, what CompuBible gains in power, it loses in bulk, complexity and, of course, cost.

The main program (version 2.0) comes on one 5¼ inch disk, Genesys is on another, and each Bible version uses 10. You need at least one version to start with, but extras can easily be added. Each version occupies about 3.2Mb of hard disk space, plus about 500K for the main program and Genesys (version 1.0) – this is appreciably more than some other similar programs. While it is possible to use a twin floppy machine, it is obvious that a lot of disk swapping is necessary, particularly if CompuBible is used with a wordprocessor or if the whole Bible is to be searched. Genesys uses 130K of RAM and CompuBible uses 384K. Monochrome, CGA, EGA or VGA monitors may be used, and extensive use is made of colours (which are easily changeable), but results are quite satisfactory in mono.

Installation of CompuBible is easy, although the instructions tend to be lost amongst other explanatory material in the documentation. The install program makes provision for various drive combinations and creates separate directories for the main files, and whichever Bible versions are used. It also sets up batch files in the root directory to run the program.

Genesys is installed separately and is customised for whichever Bible versions have already been installed. There is a trap for the unwary in that the Genesys installation program does not set up the path to the Bible version's directory properly. This is easily fixed from within Genesys – if you understand paths and directories! Also, the Genesys install program is not flexible enough to cope with a fixed disk that has a designation other than Drive C.

Once run, Genesys is memory-resident until invoked by using the hot keys (Ctrl-left Shift) from within a wordprocessor. When activated, a window appears in the centre of the screen over the top of the wordprocessing document in which the searches take place. There is also a series of drop-down menus along the top of the screen which are used in other operations. F1 sends text from Genesys back into the wordprocessor, while F7 sends it to a 'clipboard' for later use.

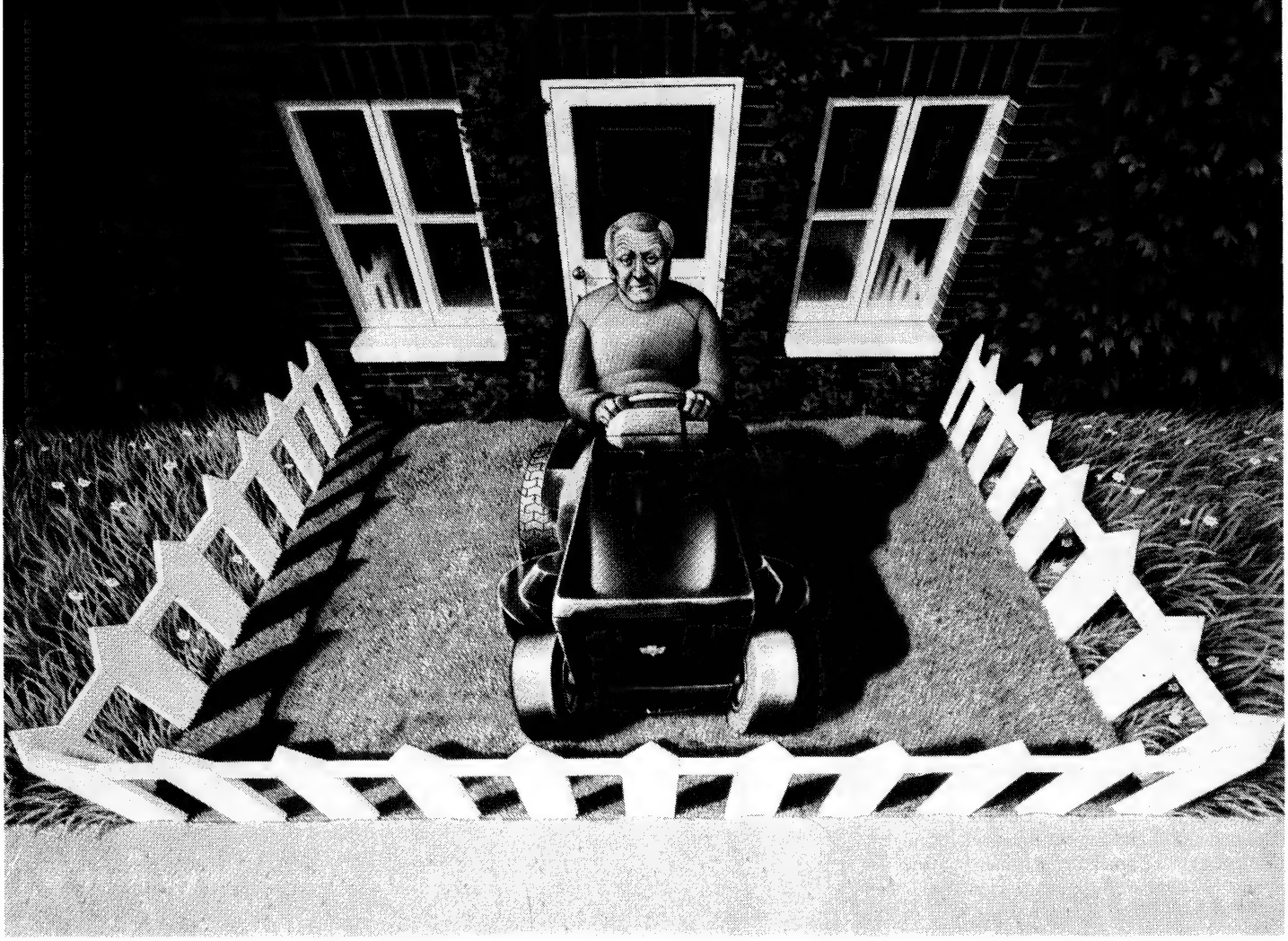
Some of the options . . .

BOTH COMPUBIBLE and Genesys have similar search and display facilities, but they are certainly not identical. CompuBible is the more powerful, being designed for serious in-depth study, while Genesys is mainly for speedily transferring the results of simple searches into a wordprocessor document. (QuickVerse Bible Concordance, reviewed in January 1990, now has a companion which functions like Genesys, but, unlike Genesys, it has the advantage of opening up all the functions of QuickVerse itself.)

Both provide the option to search for a particular Bible verse such as Psalm 23 verse 1. One helpful feature is that the Bible verse can be specified in a number of alternative ways (Psa 23.1 or Psa 23-1 and so on) and if a wrong reference is given (for example, too high a number for a chapter or verse), an error message is given indicating the number of chapters in the book or verses in the chapter. However, Bible book names are restricted to fixed three letter abbreviations – unexpected ones like '1KI' for I Kings need to be learned from the documentation.

Once a verse is located, CompuBible displays it on the screen along with surrounding verses, from which it is possible to scroll backwards and forwards. Genesys displays only the selected verse, but adds the facility to mark a whole passage like John chapter 3 or Matthew 5:1 to 6:33 (a block) for transmission to the wordprocessor.

Both CompuBible and Genesys support searching for text such as 'love of God' or



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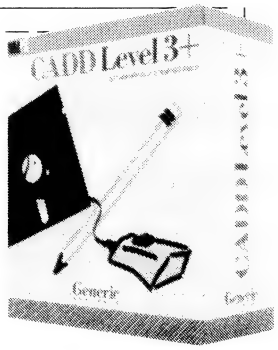

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'gospel'. Combination searches are also possible in a variety of ways – exact phrase searches (only the phrase 'son of God') or any verses with the words 'son' or 'God'; searching for words in a specified order (&) or in any order (≤); and wildcards (* and #) can be used, with a facility to eliminate unwanted words from the search list. Punctuation and capitalisation can be either taken into account or ignored.

In word or phrase searching, CompuBible does not use the Bible text directly, but uses an 'index' system. For example, looking for all the occurrences of the word 'gospel' in Mark's Gospel (New International Version) will produce –

MAR 1:1 MAR 8.35 MAR 10:29 MAR 13:10 MAR 14:9

You can then display these verses one by one commencing with the first, or you can select one from the list for display. The list itself (called an 'index') can be edited to omit or add references, and it can be printed out or stored on disk for later use. (Genesys cannot create such an index, but it can use those created by CompuBible, although I could not get it to do so for this review.) Once created, the index can be used to call up and display verses from any Bible version, eliminating the need to do another search, and also saving storage space. This is probably the greatest single theoretical advantage of the index system, although it does introduce extra stages for the user which can sometimes be confusing.

In Genesys, the absence of the index system means that searches take place sequentially throughout the Bible with the references to the verses being displayed on the screen as the search progresses. This can be a lengthy process in the case of wide range searches.

CompuBible also has another aid to searching in its Outline and Topics menu: these are descriptive lists of the contents of each of the Bible books – complete with several spelling errors!

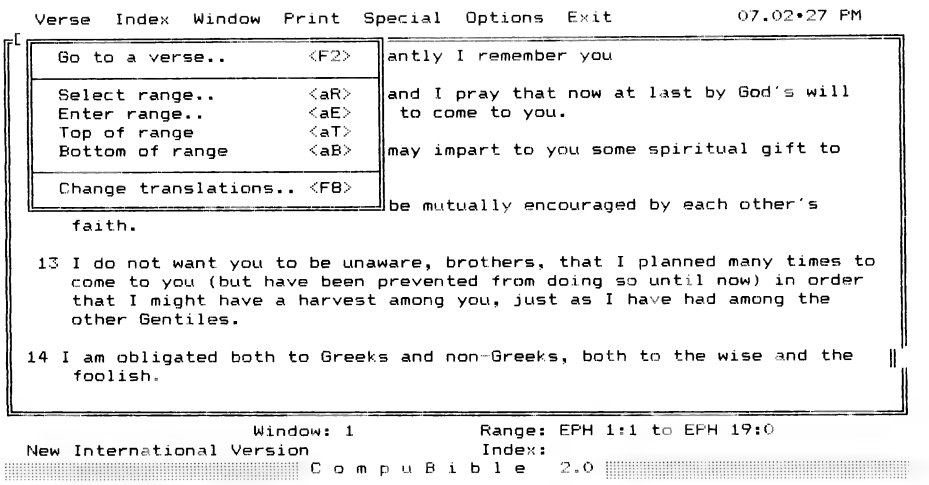
Both CompuBible and Genesys provide flexible printing formats which, together with a separate program (FORM.EXE) for customisation of page, print and margin size, and a limited range of printer drivers, should meet most, if not all, needs.

The nice points include the ability to move the search window around the screen for great clarity, altering the speed of transfer from Genesys in the case of difficult wordprocessors, and setting a 'bookmark' for easy return to a selected verse.

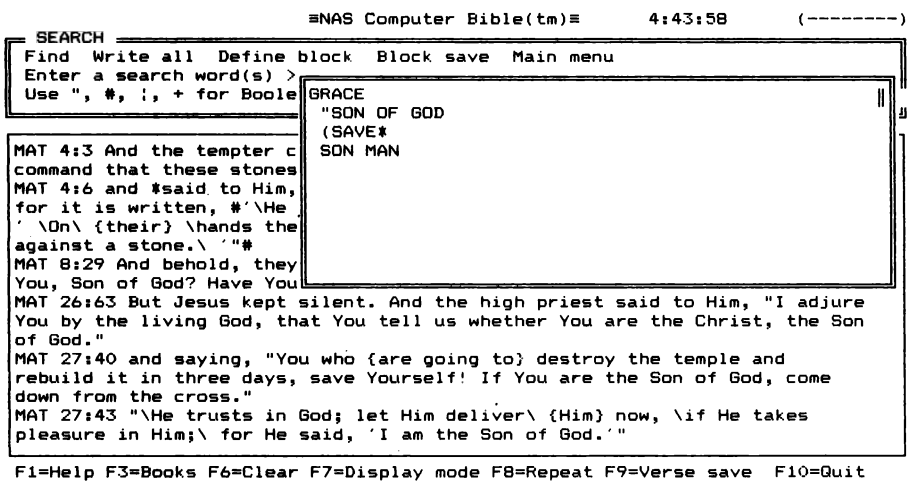
Different Bible versions may also be used simultaneously with the screen splitting facility. ' p to four windows may be created, using different versions or parts of the Bible. The contents of each window may be independent of each other or linked together, and any one may be 'zoomed' to occupy the entire screen, thus displaying a larger amount of text.

However, the ease of comparison shows up some of the qualities of the versions and therefore raises the question of the usefulness of computerised Bibles. For example, I was searching St Mark for the word 'gospel' and found that the King James Version (KJV) gave six occurrences, but the New International Version (NIV) only five, with some considerable discrepancy. On further investigation, I realised that the NIV sometimes translated the original Greek as 'good news' (three times) and the KJV sometimes had the word in the possessive ('gospel's'). The latter problem was easily fixed by searching for 'gospel*' (eight finds and, in fact, the full number of occurrences of the word), but it is difficult to get around the non-literal paraphrasing of the NIV.

The ultimate solution is to do searches on the original languages of the Bible (Hebrew for the Old Testament, Greek for the New Testament), rather than using an English translation. A few programs with this capability are available for the Greek text, and may be used to advantage by those who are familiar with that language.



A typical screen in CompuBible with the search for verse and a selected drop-down menu activated.



With the NAS Computer Bible, a window appears in the upper right corner showing the last searches.

NAS Computer Bible

THE LOCKMAN Foundation of La Habra, California, have produced their own electronic version, the NAS Computer Bible (NASCB). It has some excellent features to commend it as well as the quality of its text. It is an extremely fast program to use – the search options are always directly available by use of appropriate key strokes, so there is no need to call up an initial menu before you get started. The operation is highly instinctive and there are brief, but highly useful, reminders on the screen, as well as a full set of on-line help screens.

The NASCB also saves previous search commands for easy re-selection. So, if you have searched already for 'evangelise' and also 'salvation', merely pressing the search command without specifying a new search will list both those in a window, from which either can be selected and re-run, with modified criteria if desired.

Search criteria include the usual logical conditions (and, or, not), words, exact phrases, and wildcards with '*' and '?'. ' sing * allows you to select which particular word to search (for example, calling for 'bapt*' would allow a selection of 'baptise' or 'baptism' or 'baptist' and so on). However, using '(bapt*' would search for all wildcards, which is a useful time-saving device.

The NASCB indicates the number of verses (not the number of occurrences of the word, which would be a more useful statistic) meeting the search criteria. It only does so at the beginning of the display, so there is no way of keeping check on how far you are through the list. The search word is highlighted in reverse video for easy location. All verses meeting the criteria are immediately displayed on the screen which may be scrolled with the arrow and page keys. Other commands allow you to move around adjacent parts of the Bible as well.

Another good feature is the F7 Display Mode function, which toggles between the display of all verses meeting the search conditions, the verses surrounding the top verse on the screen, and finally, the first line only of all verses thus allowing more verses to be displayed.

Attractively packaged in a library disk box with a colourful wrapper, the NASCB (version 2.1) comes on seven 5¼ inch floppies plus one program disk (or the equivalent on 3½ inch). It requires 384K of RAM and 2.7Mb of disk space.

There is a built-in ASCII text editor (with WordStar commands) to annotate disk files of saved Bible verses. The Tab key toggles between the editor and the Bible search program. (I decided to use the editor to write this part of the review.)

Installation

INSTALLATION is easy using the install program, and the documentation is clear, although the printed version is hardly needed due to good menus and full on-line help screens. Learning to use NASCB is no effort, thanks to the logical presentation of menu options and functions.

The program loads very quickly and presents you with function key helps at the bottom of the screen and a Main Menu consisting of a list of highlighted options across the top of the screen, with brief descriptions as you move the highlight across with the arrow keys. The options available are finding a verse, saving a verse to disk or printing, searching for words or phrases, opening disk files for saving or editing, opening a second window on the screen, configuration and exit to Dos. Each of these options have their own sub-menus.

NASCB provides access to Dos and also a path and directory selection for the disk files, thus making it easy to create a file of saved verses in your wordprocessor directory for immediate use. This compensates, to a large extent, for the absence of a facility in NASCB to transfer verses directly into a wordprocessing document.

The screen can be split into two windows which may employ all of the search facilities independently of each other, or the contents of the two windows may be linked together.

One powerful feature is the ability to save to the disk an entire block of text. A 'block' is the portion of the Bible to which the search is restricted, and it can be set to any limits – a few verses, a chapter, book or more. The default is the entire Bible, so, if you accidentally press the command for saving the block, you will save the whole Bible to the disk! This command is handy for printing out several continuous verses.

Other commands enable saving of all verses in the search to either disk or printer, or merely the verse on display at the top of the screen – in this way, it is easy to save some selected verses and discard others, and also to print the verses in any order.

Conclusion

THE NAS Computer Bible is good value, and, even though it does not have all the features of CompuBible, it is entirely satisfactory for the purpose. In addition to advantages of the New American Standard Bible for computerised searches, its main features are speed, simplicity, flexibility, economy and power. Apart from the absence of a facility to transfer to a wordprocessor, limitations are minor (for example, it cannot scroll backwards in the help screens, and it has restricted print formatting). According to the producers, further improvements are in preparation, including the availability of other Bible versions and various add-ons. □

Product Details

Product: NAS Computer Bible
From: Lockman Foundation,
PO Box 2279
La Habra, CA 90632-2279 USA
Price: US$129.95
Free demo disk available

The NAS Computer Bible is good value, and, even though it does not have all the features of CompuBible, it is entirely satisfactory for the purpose.

Product: CompuBible/Genesys
Distributor: Koorong Books,
7 Broadway St,
Woolloongabba 4102 Qld
(07) 891 5100
Price: $159 (MS-Dos only)
$89 each Bible version
$4.95 Demo
$249 link to Strong's Concordance

CompuBible is the more powerful, being designed for serious in-depth study, while Genesys is mainly for speedily transferring the results of simple searches into a wordprocessor document.

Product: QuickVerse Bible Concordance
Distributor: The Bible Society in Australia,
95 Bathurst St,
Sydney 2000 NSW
(02) 267 6862
Price: $$150 (IBM or Macintosh)
$65 QuickVerse Companion

QuickVerse Bible Concordance now has a companion which functions like Genesys, but . . . it has the advantage of opening up all the functions of QuickVerse itself.

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Serial ports: 2
Parallel ports: 1
Half-height devices: 6 (4 accessible)
Other I/O: Mouse port
Expansion slots: 9 32-bit EISA, 4 64-bit for memory exp.
Power supply: 325 watt
Other: 128Kb 20ns cache, Rom-based password security
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Price (rrp): $12,068 (no hard disk)

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Fax: (02) 888 7715

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Bus: ISA
Floppy drive: 1 x 1.44Mb (optional)
Serial ports: 1
Parallel ports: 1
Half-height devices: 2 x 3.5 inch
Other I/O: mouse port, VGA / SuperVGA port
Expansion slots: 2 16-bit, both available
Power supply: 60 watts
Other: Password security, diskless model available
Warranty: 12 months
Price (rrp): $2170 (no hard disk)

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Fax: (02) 316 5648

PC 3086 8MHz XT
Std. RAM: 640Kb
Max. onboard RAM: 640Kb
Operating system: Dos 3.30
Hard drive: 30Mb IDE, 39ms
Disk Cache: optional look-ahead
Bus: XT
Floppy drive: 1 x 720Kb, 1 x 360Kb (optional)
Serial ports: 1
Parallel ports: 1
Half-height devices: 2 x 5.25 inch, 2 x 3.5 inch 1/3 height
Other I/O: mouse port, VGA
Expansion slots: 3 8-bit full length, 1 8-bit 1/2 length
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PC3286 16MHz AT
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Operating system: Dos 3.30
Hard drive: 40Mb IDE, 28ms
Disk Cache: optional look-ahead
Bus: ISA
Floppy drive: 1 x 1.44Mb, 1 x 1.2Mb (optional)
Serial ports: 1

The Classic looks like the old Mac Plus with a bit more design polish and a better keyboard, but it runs about 25 per cent faster on average and it has enough memory to use the new System 7.0 and System 6.0.6. with MultiFinder.

APPLE HAS been leaking like a sieve lately, so it probably came as no surprise to you to hear about the release of the three new Macs. Even the names were well-known months before the release in late September. I am writing this from America where, along with a number of other technical journalists, I've been allowed to play with the new machines under an embargo agreement. But don't take this, or anything else you read at this time, as a product review: this is a 'first-look' at the design and the specifications, with very little actual experience on the machines.

We knew that Apple would be heading down towards the low-end in pricing, what wasn't known ahead of time and caused something of a shock, was the general level of the price reductions that Apple were willing to wear in an attempt to win a much larger share of the market. Even the old product lines retained as part of their product mix have had an average cut in price of about 18 per cent also.

The Mac Classic

APPLE'S MAC Classic, the new 2Mb replacement for the Mac Plus, for instance, retails here for a recommended price of US$999, which, by the time it is discounted through the many fiercely competitive retail stores over here, will be well under the US$800 mark. That's down below the rock-bottom clone prices on balance, so Apple certainly will find a ready market for home and small business users who don't need a hard disk (that's an optional 40Mb unit, giving a total price of $1499). With the Classic, you can expand RAM in a SIMM up to 4Mb if you have to, which takes pressure off the need for a hard disk.

The Classic looks like the old Mac Plus with a bit more design polish and a better keyboard, but it runs about 25 per cent faster on average and it has enough memory to use the new System 7.0 and System 6.0.6. with MultiFinder. The standard floppy is a 1.4Mb SuperDrive so you can read MS-Dos or ProDos disks, and it has all the normal LocalTalk networking built-in functions, twin serial ports, ADB ports and SCSI, so you've got some way of expanding it even without slots. They've also included a sound-out (but not the new sound-in) port.

My guess is that this machine will be a winner all around the world at this price. I haven't seen the Australian prices yet, but

The new Macs

they will be out by the time you read this, and despite the dollar-translation difference and the Australian government's 20 per cent sales tax, you should have a good low-end machine for under $2000 which will do many things that can't be done on a clone at a price perhaps 50 per cent higher.

When you make comparisons with a cheap clone, you've got to allow for the lesser memory requirement of the Mac system to perform the same functions, and also for the inclusion of SCSI ports, and the many extras on the Classic at its base price. And, if you are sensible, you'll also allow for the fact that this machine still runs software written for the original 128K machine, and the Mac past extends comfortably into the Mac future, so you'll get a very long run out of your investment.

One other area where the Classic might find an eager market is as a basic data entry machine for small networks. They've now improved System 7.0 to the point where it acts as a distributed network through LocalTalk without the need for special software, so any group of Macs only need to be joined by the standard cables and you've suddenly got a very sophisticated little network. Think of all the special cards, cabling, installation and management you need to do on any other system to get any semblance of a LAN up and running!

The Mac LC

THIS IS A new-look low-end Mac which cuts the price of colour machines below that of any VGA clone around with similar levels of function. You'd need to invest in a '386SX clone with VGA to match the quality and performance of the LC, and then add another 2Mb of RAM to run Windows 3.0 before you got even close to the ease of handling.

'LC' stands for 'Low-cost Colour' the Apple marketeers say, but it is probably also the acronym for Low-profile, Compact. This is a modular Mac in a thin low box and a range of three standard monitors which sit on the top (all are supported by the motherboard). There is one cheap 12-inch monochrome monitor with 256 grey levels, a standard 12-inch RGB colour monitor (512 *x* 384 pixels) with 256 colours (virtually the same colour monitor as used by the Apple IIGS), and a new 13-inch high-definition RGB screen (640 *x* 480 pixels) at 256 colours standard.

This machine won't be available until January of next year, but many low-end, education, and small business users will find it well worth waiting for. The standard configuration provides a 1.4Mb SuperDrive, 2Mb of RAM (expandable to 10) and a 40Mb hard disk. You can dis-assemble this machine in thirty seconds if something goes wrong, and if Apple have any sense they will develop a unit-exchange facility so you are never without your machine for more than a couple of hours.

It is a mistake to say that this machine only has one slot because it also handles its video completely on the motherboard, and has a special video-RAM SIMM slot to allow you to boost the pixel-depth if you want 32,000 colours for photo-realism.

Apple are very proud of having introduced a sound-in port and digitiser with microphone in this model (and all future Macs above the Classic) but I am cynical about sound because of the way it hogs memory, so I'll reserve judgment on the value of this for a while. However, there's no denying that the sound-out and sound-replay facility on all Macs will undoubtedly be a very useful feature now that developers know that sound can be handled universally and consistently across the range.

My notes show that the American price for the LC with 2Mb of RAM and a 40 Mb hard disk is US$2499 with a further US$599 for the 12-inch colour monitor. They expect a street price of between US$2200 and US$2500 not too long after release. This model has a universal power supply, so I would expect a healthy grey-market to arise.

Apparently Australia will also have a 2Mb, single floppy version, which is a good idea to allow home buyers to get a colour machine and build on it later. I can't see how the Apple IIGS can survive against this price, but Apple say they will support the GS (and certainly the IIe) until the demand drops well away. The new Mac IIsi is the lowest of the Mac II range. It has the 030 processor but with only one (030 direct connect) slot which can handle either the NuBus or the 030 direct connect cards by use of a small adaptor card that also carries the maths co-processor. You can get a 40Mb or 80Mb, and a SuperDrive floppy is standard.

There are two banks of memory. Bank A is surface mounted on the motherboard with 1Mb of RAM and there are 4 SIMM slots that can handle another 16Mb. This machine can handle all three LC monochrome and colour monitors, plus the Portrait Display in 16 shades of grey. It is smart enough to recognise anything plugged into it, so there's not problems with installation. The two-page display requires a graphics card.

This machine was released in October world-wide. The US price is US$3769 for a 2Mb/40Mb version, with another US$999 (say) for the 13-inch colour monitor, and another US$129 for the keyboard – a total of US$4897, which will be discounted to under the US$4000 mark. Everything else is pretty much as you would expect, except that the price has been dropped because they are now managing to cram a lot less chips onto the motherboard, and obviously their cost of manufacture has dropped sharply.

All in all, Apple seem to have responded well and quickly to the challenge from the MS-Dos camp and its Windows 3.0. They've produced a couple of new machines that challenge any of the clone-makers on price (assuming comparative functions), and they've improved their operating system very substantially and their software now certainly leads in most markets.

Apple are openly fighting now for the middle-ground in the business and education markets, and they could also clean up in the home market. It is going to be an interesting year.

The SI is the lowest of the new Mac II range. It has the 68030 processor but with only one (030 direct connect) slot which can handle either the NuBus or the 030 direct connect cards. Available hard disks are 40Mb or 80Mb in size and a SuperDrive floppy is standard.

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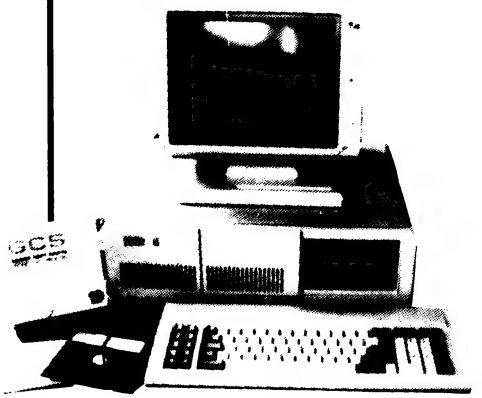

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Weight: 7kg
Power: Mains / battery
Other: VGA display, auto-parking disk
Warranty: 12 months
Price (rrp): $6711

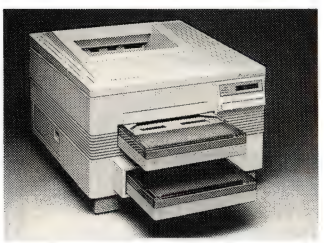
Laser Printers

Plain Paper Typesetters

Lyno's
Ph: (02) 426 5511
Fax: (02) 428 4024

Newgen Turbo 480
Rated noise (working): dBA
Compatibility: PostScript, HP LaserJet, HPGL
Paper size: A4
Input/Output trays: 200 sheet
Engine: Canon SX
Resolution: 400 *x* 800dpi
Resident typefaces: 35
PostScript: yes
Other emulations: LaserWriter II/IINTX-compatible
Data buffer: 3Mb
Buffer expandable to: 5Mb
Weight: 44lbs
Other: Optional SCSI hard disk interface. Other models: TurboPS/360 (300 x 600 dpi, $8400), TurboPS/400 (400 x 400dpi, $9223). Upgrades available
Warranty: 12 months
Price (rrp): $13,065

New LaserJet model

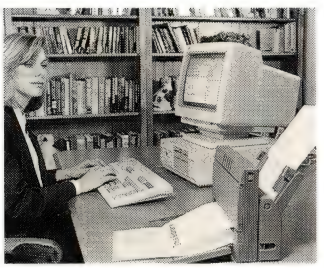


Hewlett Packard
Ph: (008) 033 821
Fax: (03) 898 7831

HP laserJet IIID
Rated noise (working): dBA
Compatibility: HP PCL 5
Paper size: A4
Input/Output trays: 2 x 200 page
Engine: Canon
Resolution: 300 *x* 300dpi
Resident typefaces: 10
PostScript: optional
Other emulations: LaserJet IID and IIP, HPGL
Data buffer: 1Mb
Buffer expandable to: 4Mb
Weight: 75.9lbs
Other: Duplex printing, Optional AppleTalk interface, envelope feeder
Warranty: 12 months on-site
Price (rrp): $4142 (exc tax)

Inkjet Printers

Canon Bubble Jet



Canon Australia
Ph: (02) 887 0166
Fax: (02) 887 1312

BJ-10e Portable printer
Rated speed (10cpi): 142cps
Rated noise (working): 45dBA
Compatibility: IBM Proprinter, Canon BJ-130e
Printing method: Bubble jet
Ink Colors: 1
Printing colors: 1
Carriage width: 8
Dots per character: 36 *x* 48
Pitch: 10, 12, 17
Resident typefaces: 2
Graphics resolution: 360 *x* 360dpi
Data buffer: 37Kb
Weight: 4lbs
Other: Optional 30 sheet feeder ($95), optional NiCad battery (30 page life, $95).
Warranty: 12 months
Price (rrp): $795.

ROM-ware

The New Electronic Encyclopedia

Ramware
Phn: (07) 356 1166
Fax: (07) 352 5404
Price: $625

Comprising all 21 volumes – some 9 million words – of Grolier's Academic American Encyclopedia, including pictures, The New Electronic Encyclopedia comes on a CD-ROM with a 'retrieval engine' on a floppy disk and a comprehensive User's Guide. The CD-ROM includes an index of article titles, an index of every discrete word used and an index of pictures as well as the full text of the 30,000 articles (including bibliographies and tables) in the book version. A VGA monitor is needed to view the pictures, but captions and other information can be read by any system. Dos 3.x and 512K of RAM are required.

Chess Datarom

CD ROM and Assoc.
Phn: (03) 872 3211
Fax: (03) 803 5679
Price: Not supplied

Chess Datarom is a 'chess informant database' setup in collaboration with the FIDE (*Federation Internationale de Echecs* – the governing body for international chess play). It holds approximately 35,000 games played since 1966, classified by opening. All of a game's moves are included as well as the players' names and ranking at the date of play, the date and place of the game and the result. Also included are comments on the game – these are provided by one of the players or an eminent chess expert and shows alternative moves at selected places in the game. Users can set up a situation on a board and then search the database for the identical set up to see how the 'masters' made the next move; or, opening moves can be specified and then the database searches for branches from that opening. The text is written in ten languages: English, Russian, Yugoslavian, Arabic, Japanese, German, French, Spanish, Italian and Swedish.

New releases?

WE ARE ALWAYS seeking new and interesting products to tell our readers about – we are particularly interested in releases that would be useful to small businesses, professional offices and 'standalone' users. Please address release information to: ***Product Updates,* Your Computer, *PO Box 199, Alexandria 2017 NSW.*** Preference will be given to those accompanied by suitable illustrations. For inclusion in a specific month, material must be submitted 6 weeks prior to the cover date. We are also interested in the stories behind new Australian product development – if there is a tale to your product that you would like to tell our readers, please contact Mark Cheeseman, Features Editor, on (02) 693 4143.

Windows-ware

Publisher's Powerpak

Trio Technology
Phn: (03) 521 0099
Fax: (03) 521 0183
Price: $149

Publisher's Powerpak is a printer driver which works with all applications that run under Windows 3.0. The package supports over 300 different printers. Using it, any Windows application can print fonts scaled on the fly between 4 and 100 points without the need for PostScript. The software drives each printer, whether dot matrix, laser or inkjet at its highest resolution for best quality output. Each pack includes Times, Helvetica and Courier equivalent typefaces and a range of other Monotype faces are optionally available. Publisher's Powerpak includes a typesetting utility which enables output to be directed to a 1200dpi PostScript typesetter. Once a document's format has been set with the package, no other formatting is required if a different printer is used. Versions for Ventura, Dos versions of Word, WordPerfect and First Publisher are also available.

Grammatik Windows

Logo Distribution
Phn: (02) 905 1844
Fax: (02) 905 6408
Price: $169 single user
$499 five user pack
$99 upgrade from Grammatik IV

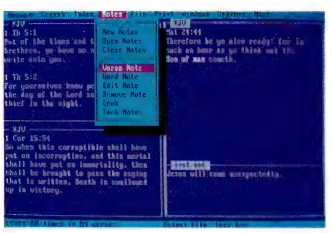
Grammatik is a grammar and style checker and proof reader that works with MS Word, Ami, Ami Professional and Windows Write files, as well as the 38 wordprocessor file formats supported in Grammatik IV. The statistical summary can now be tiled for easy comparison of readability statistics. Sentences can be broken into parts of speech in one window, while the document is proofread in another. When an error in syntax is found, a description of it is given and the error is put into context to facilitate correction.

Bible concordance

QuickVerse 2.0

Koorong Books
Phn: (02) 807 4477
Fax: (02) 809 6207
Price: $89

QuickVerse now has the ability to show multiple versions of Bible passages onscreen at the same time – four different translations of the same passage, four passages from the same translation or a combination of these can be shown at once. Indexes can now be used in search specifications which simplifies the task of finding relevant verses. Using the simple editor, which has been added to the package, footnotes can be added to any verse – when the verse is displayed later, the



footnote will appear in a separate window. Any operation which requires a file name to be input now displays a list of files, which can be sorted by date, extension, size or name. If the computer system has an EGA or VGA monitor, 43- and 50-line modes can be used.

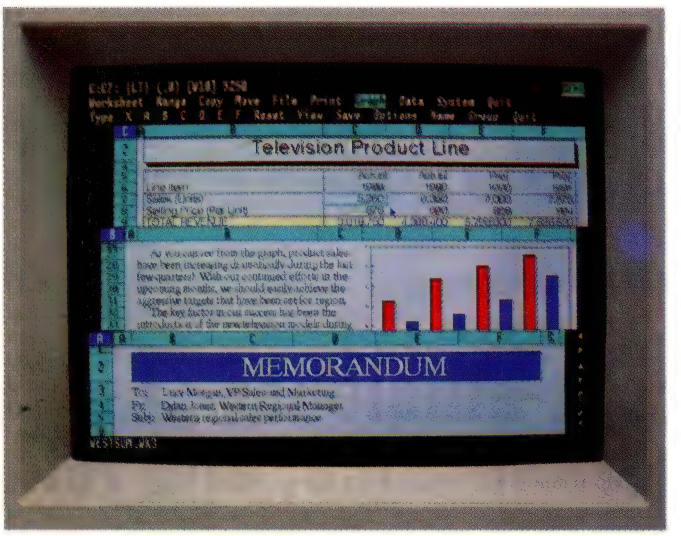
Medical dictionary

Grebin's Medical Word List

Logo Distribution
Phn: (02) 905 1844
Fax: (02) 905 6408
Price: $169 single user
$399 network edition

For WordPerfect 5.0 and 5.1, Grebin's Medical Word List is a spelling checker for some 15,500 medical, surgical and pharmaceutical terms and abbreviations. Users will automatically receive a one year's subscription that provides them with 6000 new terms – the updates will be forwarded in July and December.

Impress-ive 1-2-3



Lotus 1-2-3 release 3.1

Lotus Development
Phn: (02) 287 1900
Price: $995 Standard edition
$1150 Server

This release of 1-2-3 incorporates Impress technology from Aleph 2, a French company recently acquired by Lotus – the technology adds a WSYWIG display and full mouse support. Enhancements have also been made to worksheet formatting tools – options such as the ability to add lines, drop shadows, and color backgrounds can be applied to individual characters, cells or a 3D range. The text editing and graphic drawing tools have been upgraded (freehand drawing is now supported) and CGM (computer graphic metafiles) are now supported. The page layout and preview capabilities have been improved to help produce 'publishing' quality reports. A new virtual memory management system has been implemented, allowing worksheets to be bigger in a given environment; it also adds compatibility for a larger range of clones. System requirements are a '286 or '386 PC, 1Mb RAM, Dos 3.*x* and a hard disk.

Pick a winner!

Accuratings

Accuratings Services
Phn: (03) 877 3573
Fax: (03) 878 7722
Price: $795 database
$390 13 week update
$1500 52 week update

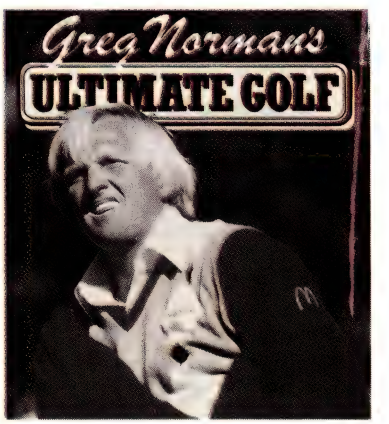
Accuratings is a database covering 28,000 horses from the five mainland Australian states over the past 6½ years. An enquiry program enables an entire race to be called up in finishing position order and also showing details, such as, beaten margins, jockeys, and weights carried. The Autorate feature gives a horse's possible rating (a performance figure for a run based in kilograms) if it wins a particular race; it is based on class plus the weight carried over the limit. The package considers the track, beaten or winning margin, calculated rating, runs from spell, track condition, class and time information and includes comments on 'luck'.

Go golfing!

Ultimate Golf

Mindscape International
Phn: (02) 899 2277
Fax: (02) 899 2348
Price: From $39.95

Greg Norman's Ulitmate Golf is an accurate simulation that uses models of real holes and courses, including height and vegetation information as well as changing weather conditions over 12 months. Up to four players can either be controlled from the keyboard or with a mouse or joystick – any number of these can be controlled by the computer, so it's possible to watch a team of experts play a round and then try and better their score. From a Preferences menu, players can choose whether or not wind will affect the flight of the ball, the effect of climatic conditons (wet grass, for example) and the effect that ball spin will have. When the Caddy feature is enabled, it will recommend the correct club for a shot and indicates whether an in, out, hook or slice shot is required to compensate for wind and obstacles. The comprehensive manual includes a number of tips for real play as well as those for computer play. Ulitmate Golf is available for IBMs, Amigas, Atari STs and the Commodore 64/128.



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- ❑ Lotus 3.0
- ❑ MS-Windows 2.0
- ❑ dBase IV
- ❑ MultiMate Advantage II
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EXPRESS PRINTING

WITH QUME'S CRYSTALPRINT

Mark Cheeseman has found an economic solution for quality printing on mixed nextworks . .

WHILE SOME PRINTER manufacturers may make distorted claims about the speed of their machines, the new CrystalPrint Express from Qume provides a breath of fresh air in terms of realistic, productive speed. As users know, the real speed of a printer is measured not merely by the number of pages it can print in a minute, but rather, the total time it takes to finish a print job. That is, the time the print command is first entered into the computer, to the time the last page is printed out.

That is where Qume's new CrystalPrint Express comes into its own. The latest of Qume's offerings in the PostScript market, the Express, is designed for local-area networks and file server systems, providing not only printing speed, but also enhanced processing time. The main reason for this is the use of the new 32-bit RISC controller, an upgraded version of the Weitek XL-8200 processor, used in Qume's CrystalPrint Publisher, released last year.

Although the Express shares the CrystalPrint name, derived from the name of the Casio LCD print engine, the Express uses the laser Xerographic engine from Sanyo. This increases the maximum throughput to 12ppm. The Sanyo engine is designed for the throughput expected of a shared network printer, and is constructed largely from steel parts in the manner of a high-capacity photocopier, rather than the plastics used in lighter duty mechanisms. The new engine can print with a resolution of 300 *x* 600dpi.

To match the increased throughput of the heavy-duty engine, the RIP (raster image processor) has been upgraded from the CrystalPrint Publisher by increasing the processing speed from 4MHz to 6MHz. The Publisher was already one of the fastest PostScript-compatible printers available, and the Express maintains the tradition. In addition, provision has been made

The CrystalPrint Express offers great flexibility with its three modes: the first is an HP LaserJet II emulation, offering PCL level 4.0, and 31 resident fonts, the second is a PostScript clone and the third mode is 'Network PostScript', which allows the printer to execute PostScript programs across a mixed network.

on the new board for up to 8Mb of DRAM to allow page buffering. This adds to the speed by permitting the RIP to image one page while the previous page is being printed from the buffer.

One feature which really distinguishes the Express from previously available PostScript printers is its software flexibility. The printer accomplishes this by working in several different modes. The first is the common HP LaserJet II emulation, offering PCL level 4.0, and 31 resident fonts.

This feature should come as manna from heaven for many network managers.

Adobe compatibility

THE SECOND MODE is a PostScript clone. While not an Adobe implementation, the built-in fonts are from the same designers where copyright arrangements permit (such as ITC Avant Garde), and are claimed to have identical measures in the case of the Linotype fonts (Helvetica and Times), which are replaced by the Roman and Swiss faces from Bitstream. In addition, the first fruits of the new openness in the font world, which followed from the Apple/Microsoft attack on Adobe's monopoly, are revealed in its ability to utilise the encrypted fonts with embedded hints compliant with Adobe's Type 1.

True Adobe compatibility seems to have arrived in a clone, but while this may be great news for Mac users, the Dos world is less easily satisfied. There can be an awkward mix of applications in a Dos environment with some, such as Ventura, requiring PostScript to realise their maximum potential, while other popular applications, such as Lotus 1-2-3, lack PostScript drivers.

The CrystalPrint Express addresses this problem in two ways. Firstly, the change between PostScript and LaserJet modes is very fast (around 10 seconds), and does not involve restarting the printer. Secondly, a third mode is provided, called Network PostScript, which allows the printer to execute PostScript programs in the normal way.

With the continuing spread of 'mixed shops', this feature should come as manna from heaven for many network managers currently struggling with the incompatibilities of mixed environments.

For more information contact the local Qume distributor, Sigma Data on (02) 439 0211; fax (02) 437 6167. □

A lucky reader will win one of the first CrystalPrint Express printers into Australia – simply complete our Reader Survey on pages 127 and 128 and send it in with contact details on a separate sheet of paper.

THE PROPHET

LARRY LEWIS

Computer porn

Suddenly the authorities have detected that computers are being used to display pornography. Minors can dial into Bulletin Boards, view and even download this stuff. I wonder where those who are complaining come from? 'Porn', in one way or another, has been in computing since the first 'girlie' banner was programmed and printed out on the line printer. Now that we have monitors that have higher resolution than televisions, it would have to be an understatement to say that one of the first uses for the technology was to display these 'porn' characters: 'Yes boss, I really need 1024 *x* 640 VGA graphics to use my word-processor.'

Now it would appear that I seem to be in favour of computer pornography. Well, there isn't actually any available for downloading on Prophet and although I have seen some of the stuff, I doubt that there are even any on my hard disk anywhere (I will have to poke around and check).

You see, I think this 'problem' is just like any other social problem and should be treated as such and – that doesn't mean we need more laws. Compared to some of the obnoxious things I see on the news each night, some of these 'porn' screens are pretty mild cheese. I would like to know why 'sex' is considered so bad, when on the news we see the likes of bloody bodies and medical operations.

Complete BBS Registry Listing

WE PUBLISH THE COMPLETE listing for ACT and New South Wales in July, October, January and April; the listing for Victoria, Tasmania and the Northern Territory in August, November, February and May; and South Australia, Western Australia and Queensland in September, December, June and March.

Registration of Bulletin Boards are only accepted electronically at the primary electronic collection points – please address all enquiries through them.

And – the documentaries on wildlife that show two hummingbirds mating, the reproductive habits of the lesser banded slug, the courtship and death of the salmon . . . how do you explain to a 4-year-old that 'I am your daddy and I didn't have to die for you to be born.'

If you are under 18 then the operator of any Bulletin Board should not permit you anywhere near any X-rated files. My opinion is that all Bulletin Board operators should demand a written request for access with a note that the user is over 18. If you are old enough, then what you want to look at is your own business.

Which brings me to often-heard 'Oh, I didn't know that Johnny was using the computer for . . .' – well, if you let a younger person have unsupervised access to a modem, it is *your* problem. Never mind accessing porn, what about dialling all over the world chasing a file, or just the fun of ringing Alaska. Computers are a tool, just as a television and video (let alone what a video recorder could get up to) can be used to display all sorts of things – it is supervision that counts.

My 4-year-old is mad on trains. But, she never puts a video cassette into the player without permission. It only took a little effort: the first several million times she tried it she got 'go to your room' and 'no trains for a week'; it's amazing how it finally sunk in. A computer is no different – if it is misused, power it off for a week, or lock the modem away for awhile. The idea will eventually get through!

One problem in the Bulletin Board community is that there are no standards or code of ethics – that's not surprising really, as it is all a hobby. Get three system operators together and you immediately have 17 opinions on how something trivial should be done (like power on a machine). A previous attempt at such a thing failed despite the best efforts of a number of dedicated sysops.

The amount of uninformed clap trap that is heard about computers would really be funny if the people involved were harmless.

Registry News

THE NATIONAL BBS Registry Coordinator (Rodney Creer) has advised me that Alan Williamson has retired as the Victorian Registry Coordinator and that Mick Stock will now take on the duties. Thanks Alan for helping out the cause and good luck to Mick.

A new display format is also being tried in the electronic listings, Rodney asks that you give him any ideas that you have (electronically naturally). □

Primary electronic collection points

National – Australian BBS Registry (08) 281 0433

ACT – PCUG Bulletin Board (06) 259 1244

NSW – 2000 & Beyond Alive BBS (02) 544 7123

Vic – Eastwood Systems (03) 870 4623

Qld – The Galaxy GateWay Computer System (07) 207 8900

SA – Oracle PC-Network (08) 234 0791

WA – 1990 Multiline (09) 370 3333

Tas – Hobart Users Bulletin Board (002) 435041

BBS Listing 9009

Mon 3 Sep 1990

New systems: 24
Online: 7
Unknown: 15
Temporarily Offline: 1
Permanently Offline: 10
Name Change: 5
Amended: 34
Total Systems: 495

VICTORIA

4–DOS
Sysop: Peter Hayes
Phone: (052) 41–2076
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

A & C Land
Sysop: Stephen Walsh
Phone: (053) 42–0807
FIDOnet: 3:635/531
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem LVA
Computer: Amiga 2000
DOS: AmigaDOS
BBSoftware: Paragon

Advance BBS
Sysop: Lex O'Connor
Phone: (03) 585–0284
FIDOnet: 3:636/201
Baud: V21 V22 V22bis
Access: Public
Computer: IBM XT Clone
DOS: PC DOS
BBSoftware: Opus

After Dark
Sysop: Robert Euston
Phone: (03) 336–3460
FIDOnet: 3:635/522
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

AIM – A)ccess I)n M)elbourne
Sysop: David Hellwege
Phone: (03) 592–3338
FIDOnet: 3:634/380
Baud: V22bis HST
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: PCBoard

AmigaLink
Sysop: Bohdan Ferens
Phone: (03) 792–3918
FIDOnet: 3:633/324
Baud: V21 V22 V22bis V23
Access: Mem LVA
BBSoftware: Opus

AmigaLink II
Sysop: Gary Gajic
Phone: (03) 376–6385
FIDOnet: 3:633/325
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: IBM XT
DOS: MS DOS
BBSoftware: Opus

AMNET
Sysop: Peter Hallgarten
Phone: (03) 366–7055
FIDOnet: 3:635/502
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: Pulsar 386
DOS: PC DOS
BBSoftware: Opus

Andy's BBS
Sysop: Andrew Gulovsen
Phone: (03) 359–6378
FIDOnet: 3:635/503
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: XT Clone
DOS: MS DOS
BBSoftware: Opus

Antarctic Crystal
Sysop: Greg Jones
Phone: (059) 68–5885
Baud: V22 V22bis V23
Access: Public
Computer: IBM AT Clone
DOS: PC DOS
BBSoftware: Opus

Arcadia Opus
Sysop: Andrew Newbury
Phone: (03) 867–8793
FIDOnet: 3:634/385
Baud: V21 V22 V22bis PEP
Access: Mem Reg LVA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

Atropos
Sysop: Nils Desperandum
Phone: (03) 887–1485
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: Fujitech XT
DOS: MS DOS
BBSoftware: Opus

AUSOM Macboard
Sysop: Ross Sheehy
Phone: (03) 587–4360
Baud: V21 V22 V22bis V23 V32 B103 B212
Computer: Macintosh
DOS: HFS
BBSoftware: Red Ryder Host

Austech BBS
Sysop: Lucas Lozo
Phone: (03) 894–2155
Baud: V21 V22 V22bis V23 V32 B103 B212 HST
Access: Public
Computer: Atari Me 4 ST
DOS: Atari TOS
BBSoftware: Mitctron
Note: V32 callers call 03–878–1279

AutoShop BBS
Sysop: The Mechanic
Phone: (03) 720–6415
FIDOnet: 3:636/501
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

Axiom BBS
Sysop: Andrew Rajcher
Phone: (03) 509–4417
FIDOnet: 3:634/388
Baud: V21 V22 V22bis V23 V32 PEP
Access: Reg LVA
Computer: Saffire AT
DOS: MS DOS
BBSoftware: Opus

Ballarat C.A.E.
Sysop: Thoshan Ruberu
Phone: (053) 33–9285
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT
DOS: PC DOS
BBSoftware: Opus

Bay City BBS
Sysop: Don Grover
Phone: (03) 772–0562
Baud: V22 V22bis
Access: Reg
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Wildcat!
Note: First time users must log on with name NEW VISITOR, password NEW

Big Tedd's Bulletin Board
Sysop: Rob Bates
Phone: (03) 509–6067
FIDOnet: 3:634/381
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM XT Clone
BBSoftware: Opus

Bits & Bytes
Sysop: Linda Brown
Phone: (059) 81–2186
Baud: V22 V22bis
Access: Mem LVA
Computer: IBM XT Clone
DOS: PC DOS
BBSoftware: Wildcat!

Black Box BBS
Sysop: Andrew Wale
Phone: (03) 879–5009
Baud: V21 V22 V22bis
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

Brainstorm Oz!
Sysop: Rowan Stevens
Phone: (03) 758–7086
FIDOnet: 3:632/305
Baud: V21 V22 V22bis V23 B103 B212
Computer: IBM XT
DOS: MS DOS
BBSoftware: Opus

Club Amiga
Sysop: Robert Canavan
Phone: (03) 743–1957
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: RemoteAccess

Comet BBS
Sysop: Mark Dods
Phone: (03) 879–0108
FIDOnet: 3:633/377
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: QuickBBS

Compusoft BBS
Sysop: George Tsoukas
Phone: (03) 386–6019
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: Mitac 386
DOS: MS DOS
BBSoftware: Opus

ComZtel
Sysop: Maurice Copeland
Phone: (057) 84–2155
Baud: V21 V22 V22bis V32
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: TPBoard

Custom Programming BBS
Sysop: Alan Williamson
Phone: (03) 848–3331
FIDOnet: 3:632/340
Baud: V22 V22bis HST
Access: Mem VA
Computer: IBM AT Clone
DOS: PC Dos
BBSoftware: PCBoard

Cybertech
Sysop: Spectral Image
Phone: (059) 85–5574
Baud: V21 V22 V22bis V23
Access: Public
Hours: Weekdays: 2200 – 1800
Computer: XT Clone
BBSoftware: Opus

Danger Mouse RBBS
Sysop: David Gaze
Phone: (03) 794–9754
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RBBS

dBoard
Sysop: John Kewley
Phone: (03) 525–6252
FIDOnet: 3:632/375
Baud: V21 V22 V23
Access: Mem Reg VA
Computer: IBM AT Clone
DOS: PC DOS
BBSoftware: JBBS

Decadence
Sysop: Inka Princess
Phone: (03) 794–7949
FIDOnet: 3:733/103
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: QuickBBS

Delta BBS
Sysop: Big Mother
Phone: (03) 836-6659
Baud: V21 V22 V22bis V23
Access: Public
Computer: Apple //e
BBSoftware: TproBBS

Dimboola Central Bulletin Board
Sysop: Steve Collins
Phone: (053) 89-1111
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg

Computer: Micro-Science 286
DOS: MS DOS
BBSoftware: Wildcat!

Discovery II M.P.BB.
Sysop: Decker & David Bowman
Phone: (059) 74-2545
Baud: V21 V22 B103 B212
Access: Reg
Computer: GoldStar XT
DOS: MS DOS
BBSoftware: Opus

Dr Blaze
Sysop: Ron Lyth
Phone: (03) 890-9323
FIDOnet: 3:634/384
Baud: V21 V22 V22bis
Access: Public
Computer: IBM AT Clone
BBSoftware: Maximus

Eastcom Opus CBCS
Sysop: Keith Haslam
Phone: (03) 808-0775
FIDOnet: 3:632/312
Baud: V21 V22 V22bis
Access: Public
Computer: Eastcom 386/20C
DOS: PC MOS
BBSoftware: Opus

Eastern Online BBS
Sysop: Dean Galloway
Phone: (03) 873-3707
FIDOnet: 3:633/201.2
Baud: V21 V22 V22bis V23
Access: Public
Hours: Daily: 2100 - 1630
BBSoftware: RemoteAccess

Eastern Plains BBS
Sysop: Martin Taylor
Phone: (051) 76-1125
FIDOnet: 3:632/311
Baud: V22 V22bis B212
Access: Mem
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Searchlight

Eastern Suburb Eighty User Group
Sysop: Martin Axford
Phone: (03) 819-5179
FIDOnet: 3:632/347
Baud: V21 V22 V22bis V23
Access: Public
Computer: Ultra AT
DOS: DOS
BBSoftware: Opus

EasyAccess
Sysop: Garry Gillard
Phone: (03) 585-0495
FIDOnet: 3:636/200
Baud: V22 V22bis V32
Access: Public
Computer: IBM 386
DOS: MS DOS
BBSoftware: Wildcat!

EMPIRE RemoteAccess
Sysop: Matthew Clements
Phone: (03) 592-5662
FIDOnet: 3:635/523
Baud: V22 V22bis
BBSoftware: RemoteAccess

File Express
Sysop: Face & Pixi
Phone: (03) 872-3738
Baud: V21 V22 V22bis V23
Access: Public
Computer: XT Clone
DOS: MS DOS
BBSoftware: Maximus

Flight Deck BBS
Sysop: Captain
Phone: (03) 752-0109
Baud: V21 V22 V22bis V23
Access: Public
Computer: C-64
BBSoftware: DTJ

Footrot Flats
Sysop: Wal
Phone: (03) 807-1632
FIDOnet: 3:636/104
Baud: V21 V22 V22bis
Access: Public
BBSoftware: QuickBBS
Note: 300 baud (V21) available 0000 - 1200daily ONLY!

Gamma Computer Systems
Sysop: Bill Jansen
Phone: (03) 885-6227
FIDOnet: 3:632/333

Genesis BBS
Sysop: Kevin Gater
Phone: (058) 31-2801
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: Opus

Green Griffon Inn
Sysop: The Obsidian
Phone: (03) 460-1128
FIDOnet: 3:633/202
Baud: V21 V22 V22bis V23
Access: Public
Hours: Daily: 2200 - 0630
Computer: IBM XT
DOS: MS DOS
BBSoftware: RemoteAccess

Heritage OZ
Sysop: Kevin Slattery
Phone: (03) 435-9934
FIDOnet: 3:633/372
Baud: V21 V22 V22bis
Access: Public
Computer: AT Clone
DOS: MS DOS
BBSoftware: Maximus

Hitchhikers Guide to the Galaxy
Sysop: Zaphod Beebelbrox
Phone: (03) 546-3038
Baud: V21 V22 V22bis V23
Access: Public
Hours: Daily: 0700 - 2300
BBSoftware: RemoteAccess

House of Games
Sysop: GameMaster
Phone: (03) 49-1418
Baud: V21 V22 V22bis B103 B212
Access: Public
Computer: Amstrad 1512DD

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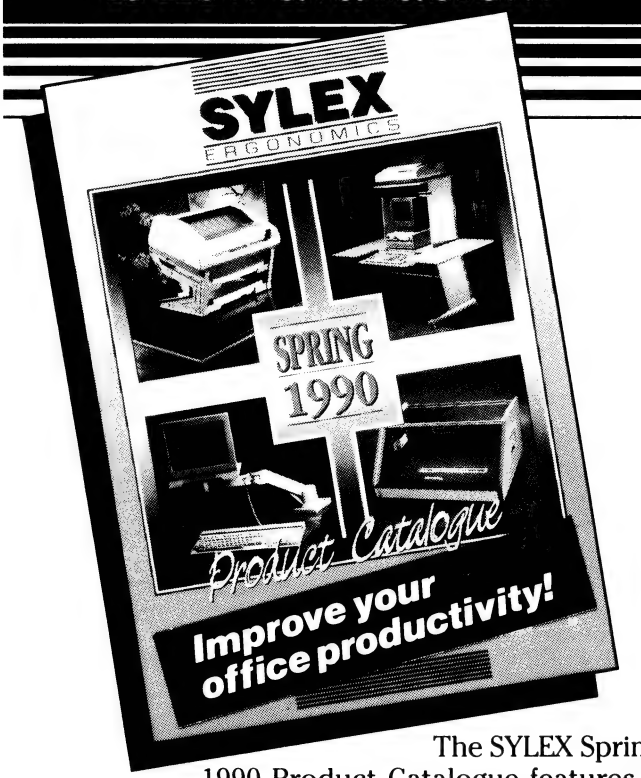

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DOS: MS DOS
BBSoftware: Wildcat!

Icehouse BBS
Sysop: Barbara Linton
Phone: (03) 720-3261
FIDOnet: 3:636/500
Baud: V22 V22bis B103 B212
Access: Public
Computer: IBM 386 Clone
DOS: MS DOS
BBSoftware: Opus

Interleave-Microscience BBS
Sysop: Greg Furlong
Phone: (03) 562-8373
FIDOnet: 3:633/361
Baud: V21 V22 V22bis
Access: Public
BBSoftware: Opus

Island BBS
Sysop: Ross Skinner
Phone: (03) 742-3993
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

J.I.T. Support
Sysop: Chris Faloon
Phone: (03) 720-4640
Baud: V21 V22 V22bis
Access: Public
Computer: Image 286
DOS: DR DOS
BBSoftware: Opus

Jeff's Amiga Board
Sysop: Jeff Stevenson
Phone: (051) 277-135
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: Amiga 2000
DOS: Amiga DOS
BBSoftware: Tag-BBS

Joust BBS
Sysop: The Quasarman
Phone: (03) 725-2539
Baud: V21 V22 V22bis
Access: Public
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

Little Shop of Horrors
Sysop: John Marsden
Phone: (03) 583-4778
FIDOnet: 3:633/364
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM XT
DOS: MS DOS
BBSoftware: RemoteAccess

Loop! BBS
Sysop: Geoffrey Edes
Phone: (03) 763-4491
FIDOnet: 3:636/600
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT
DOS: MS DOS
BBSoftware: Wildcat!

MACE
Sysop: Ron Cork
Phone: (03) 764-1185
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: Atari ST
DOS: Atari TOS
BBSoftware: Michtron

Melbourne Data Exchange
Sysop: Tervor McKerchar
Phone: (03) 596-8022
FIDOnet: 3:634/382
Baud: V22 V22bis V23
Access: Public
Computer: IBM 386 Clone
DOS: PC MOS
BBSoftware: Wildcat!

Melbourne Forth Interest Group
Sysop: Lance Collins
Phone: (03) 809-1787
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: PCBoard

Melbourne Novell User Group
Sysop: Chris Stegner
Phone: (03) 523-0482
FIDOnet: 3:634/383
Baud: V21 V22 V22bis V23
Access: Public
Computer: Ipex 286/C
DOS: MS DOS/Novell
BBSoftware: TBBS

Melbourne PC Users Group BBS
Sysop: Colin Macauley
Phone: (03) 696-2760
FIDOnet: 3:632/309
Baud: V21 V22 V22bis V23
Access: Mem LVA
Computer: Wyse 386
BBSoftware: Maximus

Metamorphosis CBCS
Sysop: Laserblade
Phone: (03) 560-2659
Baud: V22 V22bis
Access: Public
Hours: 2100 - 0800 Daily
BBSoftware: Opus

Micom CBCS
Sysop: Peter Jetson
Phone: (03) 758-8642
FIDOnet: 3:633/371
Baud: V21 V22 V22bis V23
Access: Mem Reg
Computer: IBM Clone
DOS: MS DOS
BBSoftware: Opus

Micronet Information System
Sysop: Luke Groeneveld
Phone: (03) 741-9055
FIDOnet: 3:635/505
Baud: V21 V22 V22bis V23
Access: Public
Computer: Philips 386/33
DOS: MS DOS
Note: 4 lines on this number.

Millenium BBS
Sysop: Max Headroom & Fred Frog
Phone: (03) 720-6816
FIDOnet: 3:636/100
Baud: V21 V22 V22bis V32
Access: Public
Computer: Micronica 386
BBSoftware: RemoteAccess

Narnia
Sysop: Lord Aslan
Phone: (059) 83-2046
Baud: V21 V22 V22bis
Access: Public
Hours: Daily: 2300 - 0700Weekdays: 1600 - 1730
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS

Nemesis BBS
Sysop: Amphion & Riddler
Phone: (03) 331-1155
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: IBM 386 Clone
BBSoftware: Major BBS
Note: 8 lines available on this number!

Neptune
Sysop: TML
Phone: (03) 758-9573
Baud: V21 V22 V22bis
Access: Public
BBSoftware: RemoteAccess

Nightmare BBS
Sysop: Superboy & Handyman
Phone: (03) 560-7386
FIDOnet: 3:363/103
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: RemoteAccess

Nitroland
Sysop: Nitro
Phone: (054) 41-6515
Baud: V21 V22 V22bis V23
Access: Mem VA
Computer: Commodore PC
DOS: MS DOS
BBSoftware: Wildcat!

Niveous
Sysop: Rupert Russell
Phone: (053) 33-2170
Baud: V21 V22 V22bis V23 V23ORG B103 B212
Access: Public
Computer: IBM Clone
DOS: MS DOS
BBSoftware: QuickBBS

Nuclear Confusion BBS
Sysop: Stuart Marburg
Phone: (03) 822-2919
Baud: V21 V22 V22bis V23
Access: Public
Computer: Macintosh +
DOS: Finder
BBSoftware: FBBS

Omega BBS/Vortex Host
Sysop: Mark Gregson
Phone: (052) 23-1671
Baud: V21 V22 V22bis V23 B103 B212
Access: Public
Computer: MicroDOS 386
DOS: Xenix
BBSoftware: Xenix BBS

Orion
Sysop: Phoenix
Phone: (03) 568-0835
Baud: V21 V22 V22bis
Access: Public
Computer: IBM AT
DOS: MS DOS
BBSoftware: Searchlight

Outer East BBS
Sysop: Ross Sargent
Phone: (03) 736-1181
FIDOnet: 3:633/373
Baud: V21 V22 V22bis V23 V32
Access: Public
Computer: IBM XT Clone
DOS: MS Dos
BBSoftware: Opus

PC Connection Australia
Sysop: Lloyd Borrett
Phone: (03) 388-0909
FIDOnet: 3:632/330
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: NEC Powermate 386/16
DOS: PC DOS
BBSoftware: The Major BBS
Note: Additional 4 lines: (03) 388-0133V22 V22bis V32

Peninsula Colour Computer Club BBS
Sysop: Stan Blazejewski
Phone: (03) 580-4605
Baud: V21 V22 V22bis V23
Access: Reg LVA
Hours: Daily: 2130 - 0700
Computer: Tandy CoCo 3
DOS: ADOS3
BBSoftware: CEBBS

Personal Computer Support Group
Sysop: David Woodberry & Bob Stafford
Phone: (03) 563-9102
FIDOnet: 3:632/349
Baud: V21 V22 V22bis V23
Access: Mem Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: Opus

Pheonix Comsystem
Sysop: Hunter
Phone: (03) 532-8029
Baud: V21 V22 V22bis V32
Access: Public
Computer: Amiga 2000
DOS: AmigaDOS
BBSoftware: Skyline

Photography Support Australia #1
Sysop: Gareth Shaw
Phone: (03) 808-0147
FIDOnet: 3:636/601
Baud: V21 V22 V22bis B103 B212
Access: Public
Hours: Weekdays: 2000 - 0700-Weekends: 24 Hours
Computer: IBM XT
DOS: MS DOS

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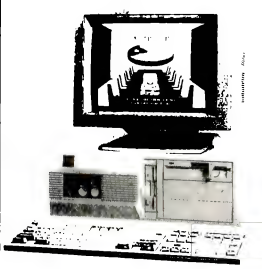

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Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM AT Clone
DOS: PC DOS
BBSoftware: WWIV

Ratz BBS
Sysop: Howard Alexander
Phone: (03) 563-8117
FIDOnet: 3:633/301
Baud: V22 V22bis B103
Access: Mem Reg VA
Computer: Amiga 2000
DOS: Amiga DOS
BBSoftware: Paragon

Redback BBS
Sysop: Shalamar
Phone: (058) 21-8273
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Hours: Weekdays: 2200 - 0600-Weekends: 2100 - 0600
Computer: Amiga 1000
DOS: AmigaDOS
BBSoftware: BBS-PC!

S.I.G
Sysop: Andrew Pam & Katherine Phelps
Phone: (03) 830-1584
Baud: V21 V22 V22bis V23
Access: Mem Reg LVA
Computer: IBM 386 Clone
DOS: PC DOS
BBSoftware: RemoteAccess

Sam's Opus BBS
Sysop: Alan Haslar
Phone: (03) 563-1117
Baud: V21 V22 V22bis V23
Access: Public
BBSoftware: Opus

SMART BBS
Sysop: Richard Hoskin
Phone: (03) 602-1336
FIDOnet: 3:632/302
Baud: V21 V22 V22bis PEP
Access: Public
Computer: ALR 386
DOS: PC DOS
BBSoftware: Opus

Southern Mail
Sysop: Maurie Halkier
Phone: (03) 725-1621
FIDOnet: 3:633/320
Baud: V22 V22bis PEP
Access: Public
Computer: Eastcom 386/25
DOS: PC MOS
BBSoftware: Maximus

Swinestud
Sysop: Craig Silva
Phone: (03) 819-9008
FIDOnet: 3:633/363
Baud: V21 V22 V22bis V23
Access: Reg VA
Computer: IBM XT Clone
DOS: MS DOS
BBSoftware: QuickBBS/Opus

Tardis II
Sysop: Malcolm Miles
Phone: (03) 859-3109
Baud: V21 V22 V22bis V23
Access: Public
Computer: PC
DOS: Concurrent DOS
BBSoftware: CALLME/GOLIATH

Telegraph Road
Sysop: Trevor Moore
Phone: (03) 743-6173
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Access: Reg LVA
BBSoftware: RemoteAccess

The Amiga Limits
Sysop: Magnus Magnanimous
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Access: Reg
Computer: IBM AT
DOS: PC DOS
BBSoftware: QuickBBS

The Bear Essentials
Sysop: Paul Ridley & Jenny Moloney
Phone: (03) 877-7333
FIDOnet: 3:633/365
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: RemoteAccess

The Black Board
Sysop: Negative Energy
Phone: (03) 776-5206
Baud: V21 V22 V22bis V23
Access: Public
Computer: Apple IIe
DOS: ProDOS
BBSoftware: GBBS Pro
Note: Use ProTERM Special Emulation if possible

The Brick Centre
Sysop: Elaine Ralph
Phone: (03) 761-1468
FIDOnet: 3:633/201
Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
DOS: MS DOS
BBSoftware: QuickBBS

The Cafe
Sysop: Cefiar Channadranac
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Baud: V21 V22 V22bis V23
Access: Public
Computer: IBM AT Clone
BBSoftware: TBBS

The CatHouse DownUnder
Sysop: John Princen
Phone: (03) 875-8215
FIDOnet: 3:632/331
Baud: V21 V22 V22bis V32
Access: Public
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DOS: MS DOS/Desqview
BBSoftware: Wildcat!
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Access: Public
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The Crossover
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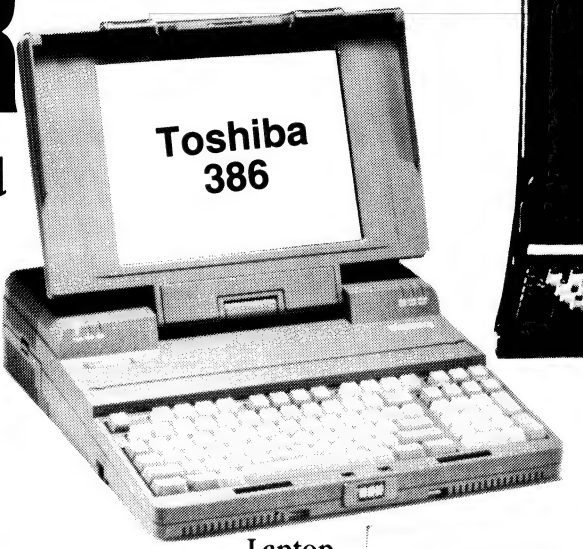

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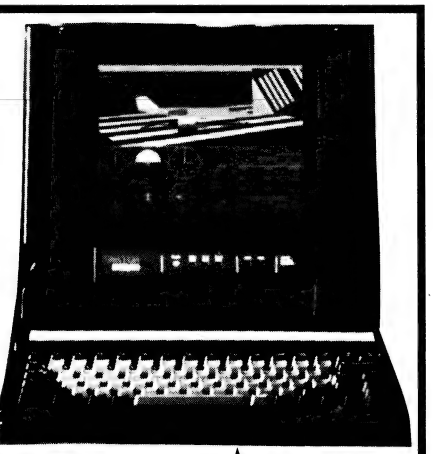

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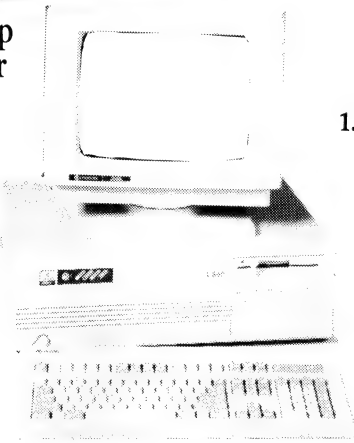

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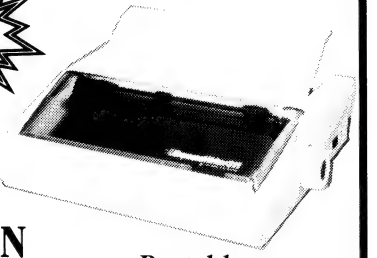

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BBSoftware: Maximus

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BBSoftware: PCBoard

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BBSoftware: RemoteAccess

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DOS: MS DOS
BBSoftware: Opus

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Access: Public
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BBSoftware: Opus

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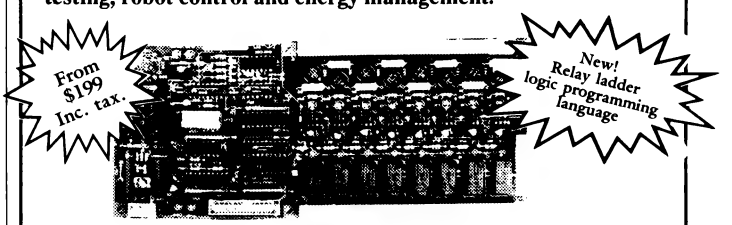

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TIM HARTNELL

Transferring programs

THIS MONTH, we'll discuss a program designed to transfer programs between 5¼ inch and 3½ inch disk machines, a few ideas for making the portable a little easier to work with, and a program designed to improve your mind.

I bought an Amstrad PPC 640 portable about six months ago mainly to copy 3½ inch disks. Since then, as you'll hear shortly, I've discovered just how useful it is to use as a computer (surprise!) rather than just as a machine for copying disks. However, before we get onto that, I'd like to discuss the ease with which you can transfer the contents of disks from another machine (such as my PC running 5¼ inch disks) to the portable.

When it comes to hardware, I am hopeless. It takes me five minutes to even work out which end of a screw driver to hold, so I generally approach serious hardware tasks, such as plugging in a printer, with a degree of trepidation.

When I bought my Amstrad portable, I realised it would not be of much use to me unless I could run the software which I run on my bigger machine. In order to transfer files, I bought a program called LapLink, described breathlessly by the marketing boys as 'the ultimate link between IBM-compatible laptop and desktop computers'. On opening the box, I found a 5¼ inch disk, a 3½ inch disk, and a hydra-headed lead, with two plugs at each end, like Siamese twins. Knowing my fear of any device at the end of a lead which is more sophisticated than an AC-power plug, I shuddered when I saw this multi-ended monster. 'It will never work for me,' I muttered pessimistically. But, of course, it did. The double plugs at each end simply allow you to choose the ones which fit your machine's RS-232C serial ports. You put one of the disks in each machine, type in 'LL' (for LapLink) on each keyboard, and you're away. You can copy the whole disk, protected files, hidden files (which it displays) and all, with a wild card (*.* command), or files with selected beginnings and/or ends (such as *.BAS); you can erase files (including read-only and hidden files, as well as emptying subdirectories), and the like. The Copy Newer Files Only option lets you keep unmodified or older copies of a

I consider it is part of my mission on earth to improve the mind of each reader of this column.

```
10 REM CHOP & CHANGE
20 REM For CPC machines, and standard BASIC
30 HS=1000:DIM A(9)
40 GOSUB 410:REM INITIALISE
50 GOSUB 110:REM PRINT OUT
60 GOSUB 180:REM PLAYER INPUT
70 GOSUB 110:REM PRINT OUT
80 GOSUB 250:REM CHECK RESULT
90 GOTO 60
100 REM *********
110 REM PRINT OUT
120 CLS:IF HS()1000 THEN PRINT:PRINT "BEST SO FAR IS"HS
130 GOSUB 160
140 FOR J=1 TO 8:PRINT CHR$(A(J));" ";:NEXT J
150 PRINT:PRINT:PRINT "1 2 3 4 5 6 7 8"
160 FOR J=1 TO 5:PRINT:NEXT J:RETURN
170 REM ************
180 REM PLAYER INPUT
190 PRINT:INPUT "NUMBER TO CHANGE";P:P=P+X
200 IF P)9 THEN P=P-9:GOTO 200
210 IF P(0 THEN P=P+9:GOTO 210
220 IF A(P)=88 AND RND).1 THEN A(P)=79
230 RETURN
240 REM ************
250 REM CHECK RESULT
260 FLAG=0:MVE=MVE+1
270 FOR Z=1 TO 8:IF A(Z)=79 THEN FLAG=FLAG+1
280 NEXT Z
290 IF FLAG=8 THEN 330:REM WIN
300 PRINT:PRINT "YOU HAVE"FLAG"RIGHT"
310 PRINT:PRINT "AFTER MOVE"MVE:RETURN
320 REM ***
330 REM WIN
340 PRINT:PRINT
350 PRINT "YOU DID IT IN"MVE"MOVES"
360 IF MVE(HS THEN HS=MVE
370 PRINT:PRINT "BEST SO FAR IS"HS
380 FOR T=1 TO 2000:NEXT T
390 GOTO 40
400 REM ***************
410 REM INITIALISATION
420 REM Drop next line on CPC machines
430 RANDOMIZE VAL(RIGHT$(TIME$,2))
440 FOR J=1 TO 8:A(J)=88:IF RND).6 THEN A(J)=79
450 NEXT J:MVE=0:X=INT(RND*7)+1:RETURN
```

Listing 1. *Chop and Change is a puzzling little program which provides far more of a challenge than you might think at first. Use this program if running it on a CPC machine, and in ordinary Basic (including Basic, BasicA and GWBasic).*

file from being copied to another disk. You can customise LapLink for your own needs, into a simple menu, change the settings if you like in this menu for the current session, or save them for future sessions, and so on. The program is simple and flexible to use, and it gets a lot of mileage in the Hartnell household.

Writing with the PPC

NOW, BACK to using the PPC 640 as a computer. I'm doing some studying this year, and I figured it would be much more convenient if I could do my notes and assignments at my study desk, rather than have to lug everything into the computer room each time I wanted to pump stuff into WordStar. So, I thought I'd give the computer a whirl – as a computer.

Apart from the WordStar prompt (an underline character), which is almost impossible to see on the LCD, I have few complaints about the PPC. The position of the Caps Lock key (where Ctrl is on my real IBM), and Ctrl where Alt should be, continues to trick me. I wish they had never made that change. I want my keyboards to be the same as each other and, as I can swap within one day from my IBM to a MicroBee to a Mac to a MicroByte HC120 to the PPC, I am sometimes heard to curse gently about the 'improved' keyboard layout which Amstrad stuck on its portable.

I've moved a number of my programs over to the PPC, and the only one which has caused the slightest problem is, interestingly enough, a Melbourne-written program called Zap, which is a disk-buffering utility, that sets up a disk cache in RAM, and is designed to minimise repeated disk access. The whole machine throws a wobbly when it hits Zap and petulantly refuses to do anything until I turn it off, so I've reluctantly had to take Zap out of my WordStar bootup file.

The prompt in the wordprocessor has proved a bit of an eye-strainer. I haven't found a way to change the prompt within WordStar (drop me a line if you've figured out some fiendish way to do it) which I can't read at all through my myopic contact lens on the PPC, but have added the line PROMPT * to my AUTOEXEC.BAT to change the > prompt to an *, which is easier to see.

I find that text which is hard up against the left-hand side of the screen is a bit of a pain to read, so I've changed my left-hand margin to begin at position 10 (rather than 1) and the right-hand margin is moved from the 65th character to the 75th. These, or similar changes, should be fine with any wordprocessor you're running on the PPC.

Improving your mind

I CONSIDER it is part of my mission on earth to improve the mind of each reader of this column, and to that end, I have written a strange little game, called Chop and Change. There are two versions listed here. One of them (identified in the first line) is designed to run in Basic2 under GEM on the Amstrad machines which supply it. The other will run on the CPC machines, and in ordinary Basic (including Basic, BasicA and GWBasic) on all the PC family.

Chop and Change is a puzzling little program which provides far more of a challenge than you might think at first. Your Amstrad will generate a random pattern of O's and X's something like –

```
0 0 X 0 X 0 X X
1 2 3 4 5 6 7 8
NUMBER TO CHANGE? 7
```

Hidden deep in its silicon mind, your computer has a pattern which determines which symbols change when you enter a number (which must be greater than 0) –

```
0 0 X 0 X 0 X X
1 2 3 4 5 6 7 8
```

```
REM CHOP & CHANGE - For BASIC2
hs=1000:DIM a(9)
10 GOSUB 24:REM INITIALISE
11 GOSUB 16:REM PRINT OUT
12 GOSUB 19:REM PLAYER INPUT
13 GOSUB 16:REM PRINT OUT
14 GOSUB 22:REM CHECK RESULT
15 GOTO 12
REM **********
16 REM PRINT OUT
CLS:IF hs()1000 THEN PRINT:PRINT TAB(5);"BEST SO FAR IS"hs
17 GOSUB 18:PRINT TAB(5);
FOR j=1 TO 8:PRINT CHR$(a(j));" ";:NEXT j:PRINT:PRINT
PRINT TAB(5);"1 2 3 4 5 6 7 8"
18 FOR j=1 TO 3:PRINT:NEXT j:RETURN
REM *************
19 REM PLAYER INPUT
PRINT:INPUT "    NUMBER TO CHANGE";p:p=p+x
20 IF p)9 THEN p=p-9:GOTO 20
21 IF p(0 THEN p=p+9:GOTO 21
IF a(p)=88 AND RND).1 THEN a(p)=79
RETURN
REM *************
22 REM CHECK RESULT
flag=0:mve=mve+1:FOR z=1 TO 8
IF a(z)=79 THEN flag=flag+1
NEXT z:IF flag=8 THEN 23:REM WIN
PRINT:PRINT TAB(5);"YOU HAVE"flag"RIGHT"
PRINT:PRINT TAB(5);"AFTER MOVE"mve:RETURN
REM ***
23 REM WIN
PRINT:PRINT:PRINT "YOU DID IT IN"mve"MOVES"
IF mve(hs THEN hs=mve
PRINT:PRINT TAB(5);"BEST SO FAR IS"hs:FOR t=1 TO 2000:NEXT t
GOTO 10
REM ***************
REM INITIALISATION
24 RANDOMIZE VAL(RIGHT$(TIME$,2))
FOR j=1 TO 8:a(j)=88:IF RND).6 THEN a(j)=79
NEXT j:mve=0:x=INT(RND*7)+1:RETURN
```

Listing 2. *Use this version of Chop and Change if you run Basic2 under GEM on the Amstrad.*

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- 1.44MB FLOPPY DRIVE
- 1.2 MB FLOPPY DRIVE
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```
YOU HAVE 4 RIGHT
AFTER MOVE 3
NUMBER TO CHANGE? 6
0 0 X 0 X 0 0 X
1 2 3 4 5 6 7 8
YOU HAVE 5 RIGHT
```

You are aiming to get each X to turn into an O, so that you end up with –

```
0 0 0 0 0 0 0 0
1 2 3 4 5 6 7 8
YOU DID IT IN 8 MOVES
BEST SO FAR IS 7
```

Once you've played the game a few times, you'll begin to see how it works, and you'll quickly deduce which numbers you need to enter in order to get the pattern to alter as you wish. Sometimes you'll do it in six to 10 moves, and other times it will take you 20 or more. Note that a slight element of randomness can modify the output as the game is underway, in order to keep you on your toes.

We'll be including 'Your Amstrad' in future issues of *YC*. I'd be interested in hearing from any companies making, or importing, software and/or hardware for any of the Amstrad computers. As well, I'd be more than happy to share any of your discoveries, hints, tips, comments and programs with other users, along with details of any Amstrad-specific user groups. A copy of my *Amstrad PC Users Companion* (disk and manual) will be given to anyone supplying PC hints which are used in this column. I have some CPC software to provide in return for CPC hints. Please write to 'Your Amstrad', Tim Hartnell, *Your Computer*, PO Box 227, Waterloo 2015 NSW. □

I haven't found a way to change the prompt within WordStar (drop me a line if you've figured out some fiendish way to do it).

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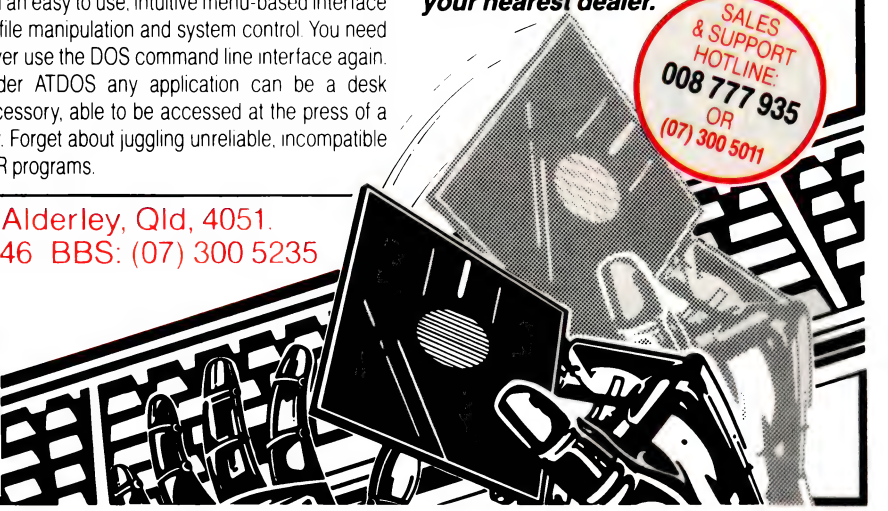

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A RAMDISK FOR ROOKIES

As Denis Wright explains, for portable or floppy-only PC users, a ramdisk improves efficiency, saves wear and tear on drives and increases battery life.

RAMDISKS – ALSO called ramdrives – have been around for a long time, but not everyone knows what they do and whether or not a ramdisk is going to suit their particular needs. In fact, new technologies have made the ramdisk obsolete under some circumstances, but not for a lot of others. If you have a hard disk, and if it operates fast, then there's not much point in creating a ramdisk if the purpose is simply to save disk access time. But if you answer yes to any of the following questions, then you could probably use a ramdisk to speed up operations and give you more flexibility in using your computer –

- ☐ Do you use floppies rather than a hard disk?
- ☐ Have you at least 512K of RAM?
- ☐ Do you have only one disk drive?
- ☐ Do you use a laptop or portable?
- ☐ Do you use your computer mainly for wordprocessing?

If you don't have a hard disk then a ramdisk will certainly be useful for you, especially if you have only one disk drive, and even more so if your disk drive is a 5.25 inch one which formats only to 360K.

How does it work?

A RAMDISK IS created by a program called RAMDRIVE.SYS that is on your original Dos startup disk. The program steals some of the computer's free memory (or RAM), and makes it behave almost exactly as if that stolen chunk of memory were a floppy disk hidden somewhere in the bowels of your computer. This ramdisk is allocated a drive number (usually C:), just like your A or B drive.

A ramdisk contrasts with a genuine disk drive in two obvious ways. Firstly, it is lightning fast – because it is already located in a corner of the computer's memory. This means that anything you load into RAM from a ramdisk (and vice versa) will do so virtually instantaneously, and that's its greatest virtue. Secondly – and this is its greatest drawback – a ramdisk exists only as long as you have the power on. Switch off your computer, and the ramdisk and all its contents disappear forever, and there's no way you can get it back.

If you don't have a hard disk then a ramdisk will certainly be useful for you, especially if you have only one disk drive, and even more so if your disk drive is a 5.25 inch one which formats only to 360K.

How to use it

THIS MEANS THAT you have to think carefully about what you might want to store in a ramdisk, because it is certainly nothing more than temporary file storage. When I first heard about ramdisks, I thought they would be great for working on data files, because once in the ramdisk, they could be loaded into memory and saved and filed in the twinkling of an eye.

But what if there's a system crash, and you have no choice but to reboot? What about power failure? Unless you have a sophisticated AC or DC power backup system for your computer then you can't afford to risk using a ramdisk to store data files. A blackout lasting less than a second – and we get lots of them where I live – or a keyboard lockup could see an afternoon's work zapped, if the data were filed only in a ramdisk and not on a floppy.

So, you may well ask, what's in it for me? Why cut down the available free memory for the sake of creating a phantom disk drive that could vanish with a power blackout or system failure? The answer is, that you should not normally use the ramdisk for saving data files at all. You use it for storing non-resident programs that you want in and out of memory frequently. If the computer zaps out for some reason, then you lose only the time it takes to re-boot, because you will always have a disk copy of the program you placed in the ramdisk.

To give you an example: how often when working only with floppies or non-resident Dos do you get the message on screen 'Insert a disk with command.com in drive A' when you were moving between programs and the disk in Drive A has no COMMAND.COM file? It's a nuisance to have to find a Dos disk and wait for the time it takes to load the file from Drive A, before doing the job you asked it to do. With a ramdisk, you can store a copy of COMMAND.COM in it, and order the computer to look there first when it needs the file. If it does need COMMAND.COM, it loads it in a fraction of a second and gets on with the task in hand. It saves considerable wear and tear on Drive A, too!

If you use a program for, say, wordprocessing and it uses less than 100K, it can be

installed in the ramdisk, together with a friendly environment program like XTPRO. (I know programs like XTPRO can be resident, but there are sometimes other programs that conflict with resident ones, so if you can access them just as fast from a ramdisk, you eliminate the problem before it arises.)

Creating a ramdisk

HERE'S HOW TO set up a ramdisk. It's very simple, and if you do it right, you'll need to do it only once, as your computer will do it automatically from then on – even when it comes to installing the files you want in the ramdisk every time you boot up. I'm assuming for the purpose of this explanation that you are using Dos 3.3 and you want to create a ramdisk 200K in size. That's large enough to store several fair-sized programs but won't siphon off too much RAM you might want for other tasks. If yours is a 640K RAM computer, though, you can probably go up to 250K without any hassle.

Firstly, find the program on your Dos disk called RAMDRIVE.SYS. It will create a ramdisk for you. But before you do anything else, you have to tell it what size ramdisk you want. This is best done by the following method –

1) Boot up your computer in the normal way.

2) Use the program RPED (it should also be on your Dos startup disk) or some other wordprocessor that saves pure text or ASCII, to edit the CONFIG.SYS file. If you are not very confident about tackling this task, the steps follow, but here's a tip: experiment on a *copy* of your Dos startup disk; *never* the original. Just make a disk copy, put it in Drive A.

3) At the A> prompt, type RPED CONFIG.SYS. What comes up on the screen will look something like this:

```
COUNTRY=044,437
FILES=20
BUFFERS=20
```

4) Add to this the following line (the only space is between 'sys' and '200') –

```
DEVICE=RAMDRIVE.SYS 200
```

5) Quit from RPED by hitting the ESC key followed by the F4 function key.

That's all there is to it! Next time you boot up, your computer will automatically create a ramdisk of 200K in size. Remember, this will mean that you have 200K less free memory, so a ramdisk may be no use to you if you need nearly all 640K for some program. Of course, the 200 mentioned when editing the CONFIG.SYS file is not fixed – you can nominate any figure you like, though there doesn't seem much point in less than 64K, and don't allocate more than 250K unless you have expanded RAM.

Using the ramdisk

SO, YOU NOW have your ramdisk. If you want to test it, reboot and try changing the drive from A to C: (simply type C: and press the Enter key). If the prompt comes up with the new drive number, you're in business.

But it's a bore to have to copy files across to it every time you boot up. Luckily, if there are files you always want in the ramdisk, you can use your AUTOEXEC.BAT file to do it automatically every time you boot up. (Of course, the disk with those files on it must be in the appropriate drive at startup.)

A ramdisk contrasts with a genuine disk drive in two obvious ways.

Here's how you do it in the case where you want the ramdisk to load the COMMAND.COM file from Drive A automatically, assuming your ramdisk is named Drive C. Use RPED to edit the AUTOEXEC.BAT file on Drive A in the same way as you did to alter the CONFIG.SYS file. This time, add the following line to the AUTOEXEC.BAT file:

```
COPY A:\COMMAND.COM C:\
```

There's one other simple but vital thing you must do to ensure that the computer now looks in the ramdisk for COMMAND.COM. Put this line at the end of your AUTOEXEC.BAT:

```
SET COMSPEC=C:\COMMAND.COM
```

If there's any other file you want to copy over to the ramdisk, do it the same way, on a new line each time. Ensure that the total file size you want to transfer does not exceed that of the ramdisk. The syntax is:

```
COPY {DRIVE}:\{FILENAME.EXT} C:\
```

Save the new AUTOEXEC.BAT file in the same way you did with CONFIG.SYS and exit RPED. Test that it's working OK by rebooting, using the Ctrl-Alt-Del combination. Ensure firstly that the files to be transferred are in your disk drive(s) to start with.

Other advantages

USUALLY, YOUR Dos disk is in Drive A, mainly because the computer often needs to access just one file – COMMAND.COM. It doesn't have to do this anymore once you follow the steps above, so you can use your regular disk drive(s) for other programs and data. This means more flexibility in disk handling.

If you use a laptop or a portable, and are on DC battery power, a ramdisk can increase your battery life considerably. This is especially true if you're willing to entrust your data as well as other programs to the ramdrive while under DC power – a reasonable risk to take providing that you save to a genuine floppy every so often. That depends on just how vital the changes to the data are that you've been working on, or how brilliant was the idea you just keyed in! But if you don't have to use the real drives very often, then the batteries will last appreciably longer.

Wordprocessing

FINALLY, A SPECIAL note to those who use their computer mainly for wordprocessing. It may well pay you not to use a very sophisticated wp program for data entry, especially if you are using a portable or laptop. There are some small wordprocessors in the public domain that do an excellent job in this respect. Only when it comes to advanced operations like automatic footnoting, spell-checking and indexing do you need to import the data into a full-featured program. In the meantime, you can use in your ramdisk something like PC Write or PC Outline (the latter is a very nifty program of just 75K that you can load in a second from a ramdisk, which means that you have lots of filespace in RAM to operate in). This is particularly useful if you are using a portable or laptop in the field, as the large programs tend to access the disk often, which is a big drain on your batteries – and not too healthy for your disk drives, either.

You now have a very useful, very fast but ephemeral new disk drive. Experiment with it – the results can be quite satisfying. □

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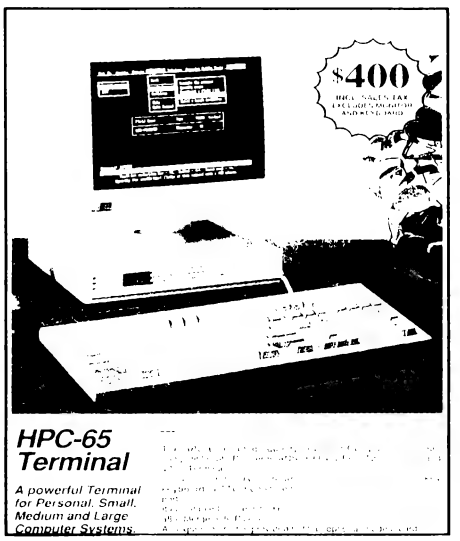

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JOHN HEPWORTH

Setting up Windows 3.0

IT'S VERY EASY to install and set up Windows 3.0. Just run the Setup program that comes on one of the distribution disks, answer a few simple questions, and feed disks into the drive from time to time. After a few minutes Windows 3.0 is up and running. There are few decisions to make, as Windows 3.0 takes a close look at your hardware and can pretty accurately assess what's there. The setup program also takes a look at your system for any Dos applications and Windows applications that are already on your system, presents a list of programs it thinks it knows, and allows you to select the ones you want. It then sets up groups for you in the Program Manager.

For those that have just joined us, Program Manager is the name of the main window that comes up when Windows 3.0 is started. In it are the groups, which are seen either as smaller windows or as icons. In turn, each group contains more icons, each of which is associated with a program. Click on a program icon, and it runs the program.

Five groups are automatically installed by the Windows setup program: Main, Accessories, Games, Non-Windows Applications and Windows Applications. Windows allocates programs pretty well amongst these groups. Main, Accessories and Games have the various utility and other programs that come with Windows, while the two Applications groups have your existing programs.

This standard arrangement works, but it may not be the best for you. A little customising, and your Windows workspace will be that much easier to use.

The very first thing to do is to rename two of the groups. The titles of the two Applications groups are just too long, and can overlap the titles of other icons. Yes, you can move them around, but it can get to be a pain, and in any case a short title is easier to read at a glance.

Why not rename Non-Windows Applications as Dos Apps, and Windows Applications as WIN Apps? Now the titles are short, and easy to read. The process is easy. Click once on a group icon, and then open Properties within the File menu. Two dialog boxes appear, one entitled Description, and the other Group File. Change the text in the Description box to whatever you desire, and it will appear on the top of the group window when it is expanded, and as the icon title when it is minimised.

But are these the right number of groups for you, and do they contain the right combinations of programs for you? On my system right now I have the five standard groups, renamed as mentioned before, plus a couple of others. One of these additional groups is Communications, the second is Databases.

Windows is a powerful and convenient environment. Add a few little tweaks, customise it to meet your special needs, and it is even more powerful.

Under Communications, I have grouped my favourite Dos communications program Telix, plus a host of other programs that I use for archive file management, disk cataloguing, virus checking and off-line messaging. Now all the programs associated with uploading and downloading files, and handling messages are in the same place. Under Databases are some Dos databases including PC File 5.0 and AskSam.

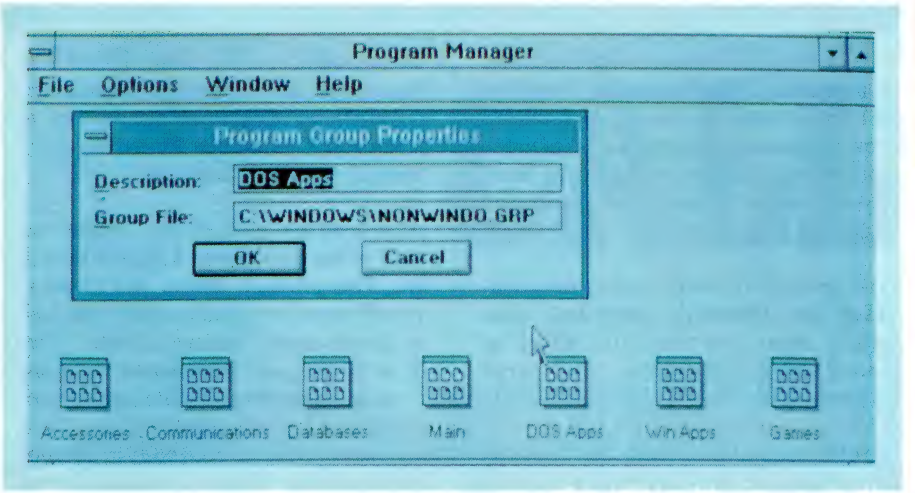
To extend the process, I could mix Dos and Windows applications in one group, and could have a Word Processing group with Ami Pro, Word Perfect, a simple Dos editor like Norton Editor and a DTP package like PageMaker altogether. Another mixed group could have a bunch of my favourite programs, and there could be almost any number of special-purpose groups. The only limitation is that Windows groups can't be nested; that is, a group cannot contain another group, but this is rarely a problem as it is possible to fit quite a lot of group icons into the Program Manager window.

Creating a new group is easy. Choose New from the File menu in Program Manager, choose to create a new group, and give it a name. Windows will suggest a group file, and an empty group is there, ready for use.

Programs can be added to a group or moved from group to group in various ways. The easy way is to move a program from one group to another. Have both groups visible on screen. Point to the program icon that you plan to move from group to group. Hold down the left mouse button, drag the icon to the new group, and release the button when it is in the desired place. Couldn't be much easier!

Alternatively, you could use the Windows setup program to add a program to a group. Open the Main group, and double-click on the Setup icon to run the Setup program, which can be run from inside the Main group as well as from the Dos command line. It can search for programs on the system, with the user having the option of telling it where to search. Setup then finds an appropriate icon and adds it to a group. Windows applications are automatically added to the Windows Applications group and Dos applications to the Non-Windows Applications group. If you have renamed the original Windows Applications and Non-Windows Applications groups, new ones will be created containing the newly added files and it will be necessary to drag the icons to the desired group.

There is another way to add programs to a group. Use File New again, and tell Program Manager that you want to add a program. A small window will pop up with two dialog boxes and four buttons. The dialog boxes are Description and Command Line, while the buttons are OK, Cancel, Browse, and Change Icon. If you know the name of the program and the drive



A new icon group is created by choosing New from the File menu in Program Manager, choose to create a new group, and give it a name. Windows will suggest a group file, and an empty group is there, ready for use. There are several ways to add programs to a group or move them between groups. To move a program from one group to another, for example, have both groups visible on screen, then point to the program icon that you plan to move and drag the icon to its new group.

and directory where it can be found, you can type this information into the two dialog boxes, and press Enter. The job is done, except for editing a .PIF file for Dos applications. Alternatively, click on Browse within the same box. This displays two list boxes, one showing the names of .EXE files in the default directory, the other allowing a change of drive or directory. Go to the desired directory, scroll through the names of the files until the desired one is seen, and double click on it. The drive, directory and file name are added to the Command Line dialog box. To add .COM or .BAT files, just change the file specification to *.COM or *.BAT and the appropriate list of file names is seen.

Directory arrangements

YOUR WINDOWS directory contains a vast number of files. All the various Windows files, including the accessory programs and the main programs are there when Windows Setup has done its job. Many Windows applications when installed, will offer to create a new directory, but some will install themselves in your Windows directory. Windows programs usually default to saving their data files in the same directory as the program. This will mean that, if you are not careful, your Windows directory will fill up with a vast number of programs and their data files.

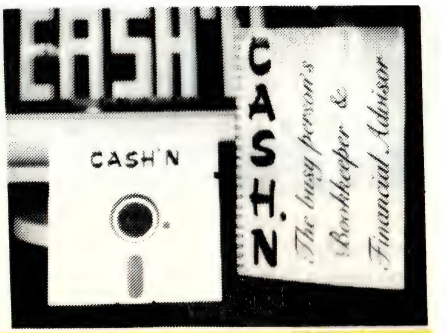
The result is a twofold problem. As the directory fills up, access speed of the hard disk will seem to slow. The other problem comes when you want to remove a few files from the disk. It is then all too easy to erase vital program files while attempting to get rid of an old data file.

A few of the Accessories also create or manipulate data files. Giving each of these its own directory beneath the Windows directory can save you a lot of heartache. The programs concerned are Calendar, Write, PaintBrush, Terminal and CardFile. I moved them all to their own directories, but kept Notepad, another Accessory that can create or edit files, in the main Windows directory as it is very useful for editing ASCII files and, in particular, for editing the Windows initialisation file, WIN.INI.

To move one of the Accessories, use File Manager to create an individual directory for each one beneath the Windows directory. Then use File Manager to move the relevant .EXE file and help file, plus the data files and subsidiary files, into the new directory.

Having moved the files to their new directories, finish off the job by pointing to each of the program icons one at a time, and using File Properties from the Program Manager file menu to change the drive and directory.

Windows is a powerful and convenient environment. Add a few little tweaks, customise it to meet your special needs, and it is even more powerful. □



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THE FORTH COLUMN

ROY HILL

Forth decompilers

ONE OF THE many requests I receive is to discuss the use, and abuse, of Forth decompilers. A decompiler is used to turn object code back into a reasonable approximation of the source code that it was derived from. For most languages this is not an easy process, as the compilation process usually produces far more object code than there was source code – a term commonly called code expansion. This tends to remove any of the correspondence between the original source code and the object code produced. I once tried to disassemble an 8K object code produced on a 6502 assembler. The process was pretty horrific, in that it was extremely difficult to differentiate between actual code and tables of byte values. The best way to handle it was to generate two listings – one of the disassembled source code and one of a straight ASCII dump of the code. This helped to sort out some, but not all, of the table entries (as not all the tables contained English sentences).

In Forth, however, the reversal process is so easy, it's almost trivial. The correspondence between the object code and the source code that produced it, is almost one-to-one. The only problem areas are the control structures (IF..THEN, BEGIN...AGAIN, REPEAT...UNTIL, and so on) and special compiling directives. These special cases mean that decompilers are usually specific to a particular Forth variety. The Forth word that invokes the decompiler is SEE <name>, where <name> is the name of the word that is required to be decompiled. The source for SEE is contained in the file DECOM.SEQ. Decompilation of colon words is relatively easy. All that we have to do is find the NFA (Name Field Addresses) of the words in the list of CFAs (Code Field Addresses). The decompiling word that accomplishes this is called comments –

All of the control structure words are handled by special decompiling words, such as .DO, .WHILE, .AGAIN, .ELSE, and so on. It is very interesting to decompile a word that contains several different constructs and see what it contains. Such a word is >.ID which is used to search for a colon defined word at an address provided on the stack and display its name. This word provides a combination of literals, branches and other colon words. Here is the source code for >.ID

```
: .WORD         (IP--IP')
      DUP
      DECOMSEG@       \ get the next CFA in the list
      >NAME YC@       \ and find out if the
      64 AND          \ word is an immediate word
      IF              \ if it is an immediate word
         DUP          \ then add the phrase
         YC@ 31 AND \ [COMPILE] which causes
         10 + ?LINE \ immediate words to be compiled
         ." [COMPILE]"
      THEN
      DUP             \ in any case, display the name
      DECOMSEG@       \ of the word and then
      >NAME.ID        \ increment the pointer
      2+ ;            \ to the next word
```

```
: >.ID          ( A1 --- )
                DUP 200 U< IF DROP EXIT THEN
                128 0
                DO      DUP @REL>ABS 'DOCOL =
                        IF  LEAVE ELSE 1- THEN
                LOOP    >NAME .ID ;

Now let's have a look at what SEE produces:-

: >.ID
      DUP 200 U<
      IF DROP EXIT
      THEN 128 0
      DO    DUP @REL>ABS ' DOCOL =
            IF (LEAVE)
            ELSE 1-
            THEN
      LOOP >NAME .ID ;
```

There's only one difference in the decompiled code, compared to the source code and I'll leave it to you to guess why (answer next month). Please note that the form in which SEE is provided with the F-PC package, will *not* decompile code words. To decompile these as well, the source file DISASSEM.SEQ must be loaded. This modifies SEE to work with code words. For example, SEE AND will produce the first line of the disassembly of the code word AND. Pressing enter will display the next line and so on. Decompilations and disassemblies can also be written to a source file, for later viewing and editing. □

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MS

For more information about multiple sclerosis contact the MS Society in your state

JOHN HEPWORTH

Windows - the great leap forward

THE OTHER day I installed Windows 3.0 on the office 80286. A few minutes after I started to use it a colleague came by. 'Wow, just like a Mac,' he said in praise, not sarcasm. This comment came from an avid user of Apple's pride and joy who has a Mac SE at home and access to various machines in the Mac II series. He loved the visual appearance of Windows 3.0, and the way that, even on a small VGA monitor, the color was attractive and the image was sharp. But, what he really liked was the price. A cheap AT clone with VGA and Windows 3.0 has a user interface as easy to use as a Mac, but for a fraction of the price.

The whole process made me think, and I realised that 1990 marks the start of a new era. The release of Windows 3.0 will be remembered as one of the landmark events in the microcomputer industry, and is evidence of a rapid convergence of the various microcomputer families and operating systems.

If you look back 10 years, you will find the Apple II, the TRS 80 series, and a host of CP/M machines. Each of these families worked differently – there was little or no chance of common disk formats, and in other ways, they were even less compatible. There were even incompatibilities between machines that used CP/M. While this was an operating system used by many computers, each vendor added its own features and invented a new disk format. The result was literally hundreds of mutually incompatible disk formats.

The coming of the IBM PC in the early eighties brought a common disk format. However, a host of MS-Dos machines were still incompatible with IBM and each other in many ways. As time passed, vendors either started to build machines that were compatible with IBM, or they perished by the wayside. A couple of years later, the Mac brought the dramatic and revolutionary graphical user interface (GUI). The Mac has steadily increased its sales from year to year, now it has around 20 per cent of the market. For a few years, Macs and PCs have been fierce competitors – each with its own domain.

Wouldn't it be great to break down the barriers and get some form of compatibility between PCs and Macs? What do we need for this to be possible? It starts with common user interfaces (CUI), or at least ones that are similar enough for users to transfer quickly and easily from one to the other. Later, a common file format, so that a spreadsheet or document can be created, edited or printed on either machine. Closely allied to this is a common disk format, local area networks (LANs), or serial communications. These allow data files to be taken from the PC to the Mac or back. Finally comes binary compatibility, with an operating system with versions for the PC and the Mac that can execute the same machine language programs on both machines.

The release of Windows 3.0 will be remembered as one of the landmark events in the microcomputer industry.

The coming of Windows removes one of the compatibility barriers. It gives PC users a Mac-like user interface, thus making it easier to move from one to the other. Common file formats for applications on PCs and Macs are starting to appear, for example, Excel data files can be read by Excel on the Mac, on a PC under Windows or OS/2. Likewise, Word on the Mac and Word for Windows can interchange files, but they must go through an intermediate file format in the process. There are many other programs with PC and Mac versions that have compatible file formats on both machines, and more are coming every day.

Next comes the problem of getting files from one machine to the other. Macs and PCs have radically different disk formats, but there are many ways to transfer files. Some Macs can read and write disks in Dos formats, while putting a Copy II PC Deluxe Option Board in your PC will allow the PC to format, read and write Mac disks. There are also a host of networks that support both Macs and PCs and allow for the easy sharing of data files. Tops, which runs on both LocalTalk cabling or Ethernet, is just one such network. It uses adapter cards for PCs, and the LocalTalk port on Macs. It also offers the advantage that it can directly use the LocalTalk port found on most PostScript printers and allows a printer to be an independent station on the network, without having to be directly attached to a computer.

Binary compatibility is a 'science fiction' scenario where a user can walk up to any machine with a disk, and regardless of the machine's architecture or processor, read the files and run the programs. In order for this to be possible, you need an operating system with versions for both the PC and the Mac, that can run the same machine language program on either machine. There are whispers that there are attempts being made to create a 'portable OS/2' with versions for processors other than the Intel series. One of the suggested targets for such a program is the Mac. In the meantime, Windows is a valuable first step in breaking down the barriers between the PC and the Mac. For many years it will be a force in its own right, and will set the stage for more powerful operating systems and user interfaces in the future.

Virus busters

I HAVE talked before about the sort of precautions I take to avoid being hit by a virus. And yet, the other day, I still got caught. A commercial disk from a very reputable newsletter arrived in the mail. I put it in my A: drive, ready to do a virus scan. Unfortunately, an urgent call came in, so I turned off the machine and left. When I came back, I turned the machine on and forgot to open the A: drive door.

The disk had been infected with the Marijuana virus at the mastering stage, during duplication or at a subsequent checking stage. As my system booted, it first looked at the A: drive, executing the virus which then infected the partition table on the hard disk. Fortunately, I have the NBY virus checking program from Calmer Software Services on the hard disk

and it's run by my AUTOEXEC.BAT file every time the system boots, and warns me immediately if a virus is active. I turned off the machine, got the rescue disk created by NBY the first time it was run, and removed the virus. The whole process from infection, through detection to disinfection, took less than a minute. I then ran a scan on the hard disk with SCAN from McAfee Associates to double-check that it was clean.

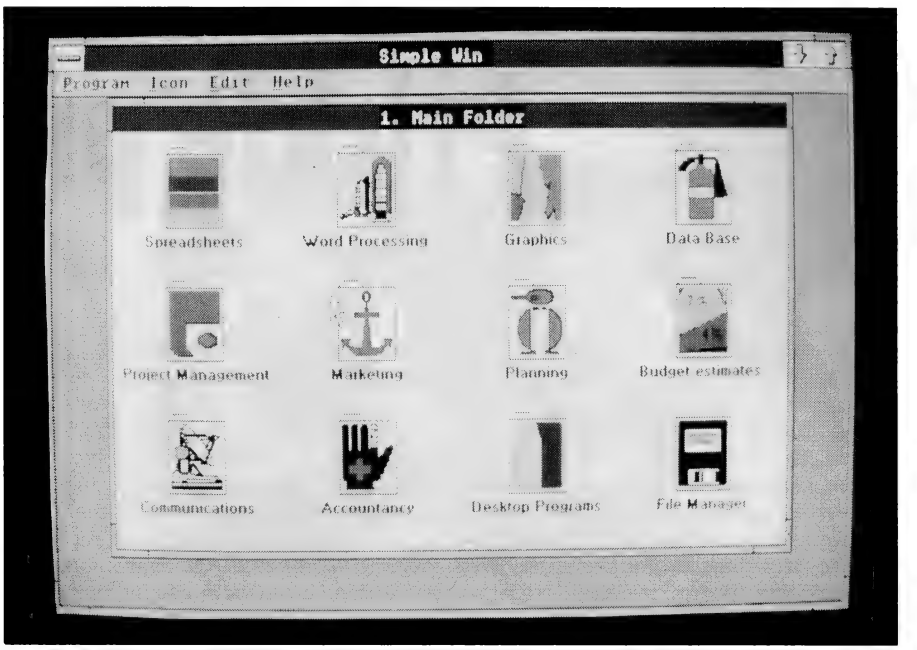
I have always thought that NBY is top value, and that all PC users should have a copy. Now, I upgrade that advice. Calmer's NBY saved my bacon, painlessly. If you don't have a copy – don't delay!

NBY is just one utility on the four disk set of Calmer Utilities, with the others having a variety of uses. They are available on most bulletin boards, including Calmer's own board on (02) 482 1716, or on disk direct from Calmer Software Services, 361 Somerville Rd, Hornsby Heights 2077 NSW, (02) 482 1715. Registration is a mere $40. The Shareware version finds most viruses (it would be a brave person to claim that any product can find all viruses), while the registered version will also remove them.

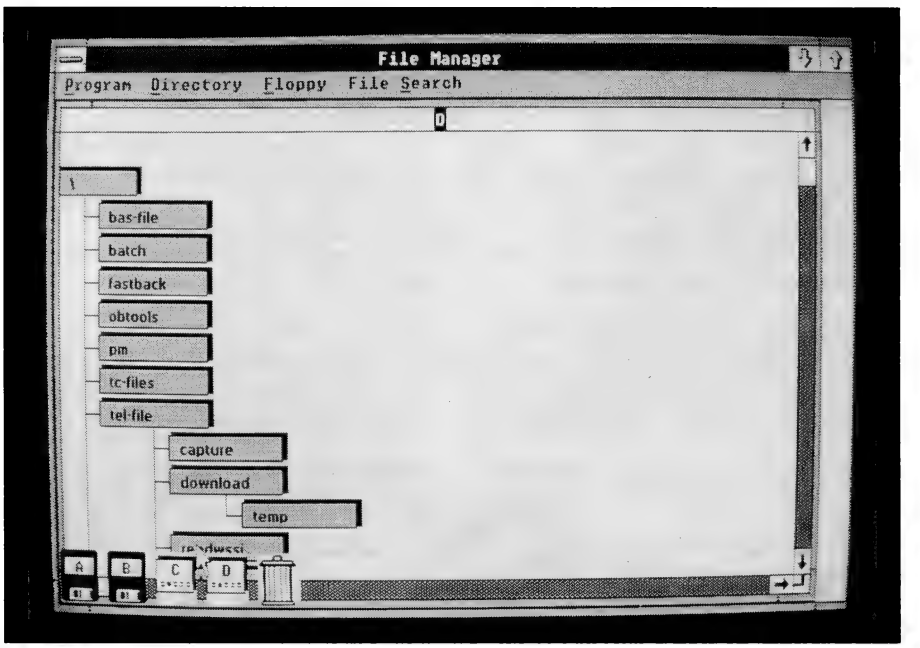
There's been a lot of talk in the popular press about ways computers can be infected with a virus. They typically suggest that users should only use commercial shrink-wrapped software. And, the same articles will usually pin-point pirated software or Shareware as possible culprits. I agree that pirated software is dodgy in the extreme, but Shareware in general, and bulletin boards in particular, seem to be the target of a campaign by vendors of commercial software, hoping to steer customers to their own products. I have downloaded hundreds of megabytes of software from bulletin boards and then checked for viruses with the best available scanning programs. So far, I have found no viruses in any downloaded software. At the same time, I have seen commercial disks from reputable suppliers, and data disks infected.

Pirated software is still extremely suspect. Not only is it grossly unethical and illegal to use, but the disks must have been in at least one other machine and may have been infected there. In addition, vital files may be missing and/or hacked. The risks involved in using pirated software are far too great!

There is one vital rule – if you don't want to be the victim of a computer virus attack, never trust any disk that has come from another machine or has been taken to another machine. Scan *all* disks – even those straight out of shrink-wrapped packages of commercial software. Remember, some dealers may accept returns of software for many reasons, and the package may be shrink-wrapped again. Finally, make absolutely sure that you check that there isn't a disk in your A: drive, or at least make sure the drive door is open, before you turn on your PC. ❑



Even Mac users are impressed with Windows now – an AT clone with VGA and Windows 3.0 has a user interface as easy to use as a Mac, but for a fraction of the price.



The emergence of Windows removes one of the compatibility barriers between Macs and PCs by giving PC users a Mac-like user interface, thus making it easier to move from one to the other.

JOHN BAILEY

Prickle problems

I HAVE HAD the good fortune to receive copies of a number of specialty software packages over the last few months. The authors have seen a gap in the market and have attempted to produce products that fill a gap. They have ranged from a farm paddock recording scheme to several golf club handicap management systems.

In every case the packages do the job they were intended to perform. Most of them contain flaws in their presentation and marketing. None of the errors are fatal or detract from the eventual usefulness of the product, but I believe that the authors could achieve better market acceptance by making some changes to their output. In taking this approach I am sticking my neck out, but if those clever people who have done all that hard work can make more money then it will be worth it.

HandiTax

ONE MARKETING problem that can arise is the annexation of software by competitors. This can happen in many ways, some are perfectly legal and others not so straightforward. It is as well to remember that there are sharks in every sea.

The following item of software that illustrates a point was not sent directly to me but was purchased by my accountant. The package is designed to prepare taxation returns, send out the accounts to clients and allows for electronic lodgment of returns with the tax office. The package is called HandiTax and is available from HandiSoft, (09) 448 8579, in Perth and costs around $800.00 with backup software. It does all the right things in the right order and is much less expensive than comparable packages.

The advertising material sent out prior to purchase is very good, outlining all the functions of the software in language that is understood by accountants and was better presented than at least one other high priced competitor. The manual has been written by the authors of the software and is well presented, but it doesn't always explain things to people new to computers and accounting. Using this package has been rather like playing a pirated game. For every gain there has been a little pain.

I believe that software manuals should never be wholly produced by the software authors. In this case the manual isn't bad, but it lacks detail and a comprehensive index. The solution is simple, send it out and have it professionally rewritten. It should not cost a great deal because there is only a little to add. My accountant is of a somewhat reactionary persuasion and expected computers to provide immediate results and be adaptable to his own way of operation, fortunately his staff were keen to persevere and HandiTax is doing its job. In defence of the product, I must say that the client handling system is great and it does all the right things with preparing tax forms. From our research, it looks to represent very good value for money.

Beeftec

BEEF CATTLE are a very important part of Australian agriculture and the stud cattle industry plays a significant role. Beeftec is a software package designed to assist in the management of herd records and works well. It stores all the essential family information pertinent to a stud or commercial breeding herd. The manual is presented on disk and has been written using WordPerfect. Printing it is not a big problem, but I just happen to like my on-disk manuals stored in ASCII files. From a marketing point of view I would like to see Beeftec, available through Roger Petheram of Computent (068) 84 3381, change its name to something more generic like Progeny Genie (Progenie) because it is so complete that it could be used for storing breeding records of deer, goats, sheep or almost any breeding group (pigs might be a problem, it doesn't currently cater for a cow with 14 calves).

Demonstration software is the area where developers and marketers often let themselves down. A demonstration disk is a great way of introducing your product to new users but sending a demonstration disk to a reviewer is asking for a review of a demonstration disk – it will rate half a dozen lines. I can understand that the considerable effort spent in preparing software for market needs to be protected from piracy, but if you want to get your message out there, you either have to spend a lot of advertising money or give someone a look at your product.

An advertising budget is one of the most difficult things to decide for niche software. A big product like SuperCalc or WordStar needs to compete against opposing products and because the product features are so similar, the marketers must create some perceived technical premium. The products which are most alike are the most widely advertised: cars, soap, compatible PCs, petrol, and insurance, for example. Highly specialised software designed to maintain beef breeding records or to assess climatological changes is not often worth advertising on television or in some other mass medium because the market is either non-existent or very sparse.

The scattered market is better approached using personal mailing or special-interest publications. To condense the above principles, let us suppose that you have a cactus farm and you market all kinds of cacti in pots around the world. Over the years you have developed a computer program that tracks sales and stocks, maintains plant breeding records and includes an intelligent system that provides guidance on the care and maintenance of all the cacti in your inventory. You sell the business, but not the program and you wish to market it. First you have to tell prospective buyers that the program exists and what it can do for them.

It is likely that you know every cactus grower and marketer in the country so a letter would be a good idea. If the cactus industry has expanded rapidly you might consider a series of ads in the *Cactus Trade Journal* (should there be such a thing), as well as providing its editor with a full copy of the software, documentation and any specialist hardware associated with the package.

In this case, there is a micro-environmental data logging device included in the package and you have the choice of having it serviced by a national service

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agency or getting the local designer to do it. Under a service warranty, the machine has to go to a city, sit around and then come back. Under a replacement warranty the client phones and says 'My data thingy is bust!' and you send out a good one whilst your client sends in the dud which is fixed and placed on the shelf. For diverse markets a replacement warranty will provide the greatest customer satisfaction. In this vein, I have recently changed my printer purchase recommendations because of delays experienced in service warranty.

I would also look very hard at the opportunities for product diversification. Ask yourself if the product is applicable to other succulent plants, or other plants in general. If you join forces with or market via an established software house, make sure that your product is not lost in the bulk of other products or allowed to run second to a competing stablemate. Lastly, get some outside help with documentation and marketing. It is your brain-child and like all brilliant children it will need assistance from less closely involved specialists. □

Highly specialised software, such as a program that tracks sales and stocks of cacti, maintains plant breeding records and includes an intelligent system for care and maintenance. Such a scattered market is best approached using personal mailing or special-interest publications.

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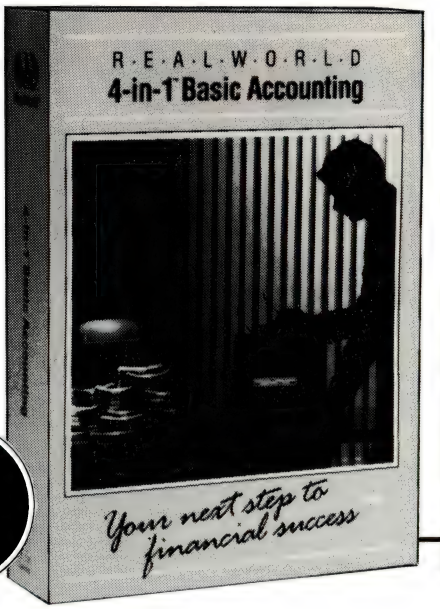

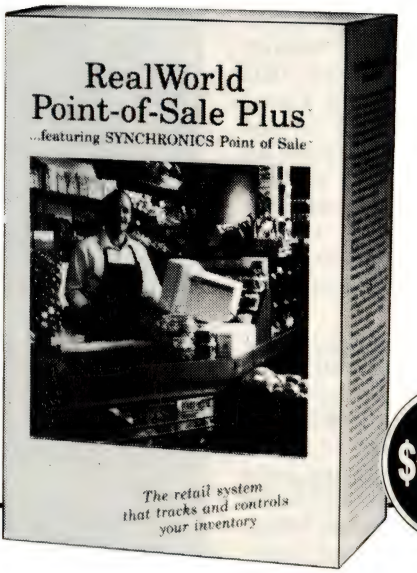

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IAN ALLEN

The game of Life

THE GAME OF Life was invented in the '60s by a Cambridge mathematician called John Conway. Essentially, it's a model of a world which is made up of a two dimensional grid populated by living cells. There are just four simple rules which govern the life and death of the cells.

Firstly, every cell with two or three neighbours survives to the next generation. Secondly, every cell with zero or one neighbour dies of loneliness. Thirdly, every cell with four or more neighbours dies of overcrowding. And, finally, cells will be born on any empty point of the grid which has exactly three living cells as neighbours.

These four simple rules can produce quite complex behaviour. And, simple patterns of cells can form shapes which evolve into more complex ones. Sometimes a group of cells 'evolves' to a point of stability, where the pattern is arranged in a way that all of the cells are alive, yet no new cells are born. Other patterns reproduce themselves, seeming to move about the grid as a living entity - these are called 'gliders' or 'spaceships'.

Even if you start with a random pattern, the four simple rules will eventually impose some sort of ordered appearance on the grid. It's a good example of the Chaos theory – order coming out of disorder.

You can use Basic to program the C-64 to model the Game of Life, but I've taken the trouble to write a short machine code program that works much faster and is very flexible. I've written it in such a way that a few simple POKEs will give you control over the shape and color of the cells as they are born, live and die, plus you can alter the color and shape of the grid.

At the simplest level, you can run the program with one line of Basic, or you might like to try writing a more sophisticated Basic program to drive it. Either way, the ML code here will do all the hard work for you – it even 'wraps' the top and bottom of the screen (and the left and right sides) so that our computer universe has no boundaries.

How it works

THERE ARE three entry points to the program. SYS 49152 calls a routine which looks at the screen and creates a table in memory. Any characters on the screen, except blank spaces or the grid character, become living cells. I did it this way so that you can set up the initial conditions simply by typing letters on the screen. The routine translates the initial screen into a grid with cells on it. The default character for the grid background is a cross, for the cells it's a solid ball.

You can use Basic to program the C-64 to model the Game of Life, but I've taken the trouble to write a short machine code program that works much faster.

SYS 49152 + 6 calls a routine which applies the four rules to each cell on the screen and cells that are about to die are drawn as red diamonds. Cells that are about to be born are drawn as light grey hollow balls. The routine also calls the C-64's Plot routine to position the cursor at the bottom left-hand of the screen, but more on that later.

SYS 49152 + 3 calls a routine which 'kills' all of the cells marked for death. The screen is redrawn so that it only shows living cells and those about to be born. I split the code into the three routines so that you can generate an animation effect as cells are born or die. To make the program run, you need only to make the 3 SYS calls in order, for example –

```
10 SYS 49152: SYS 49152+6: SYS
49152+3: GOTO 10
```

The grid is sized to be 24 rows by 40 columns. This leaves the bottom line blank, and it can be used to place a count of the number of generations that have passed. You can still do this in one line –

```
10 SYS 49152: SYS 49152+6: SYS
49152+3: GOTO 10
```

The second SYS call positions the cursor for you. Make sure you include the semi-colon after the Print statement, otherwise the screen will scroll.

Cosmetics

YOU CAN ALTER the default choice of characters by POKEing their screen codes into the following locations (default values are included) –

```
Character

Birth  POKE 49152+9,87
Death  POKE 49152+10,90
Life   POKE 49152+11,81
Grid   Poke 49152+12,91

Colour

POKE 49152+15,15    (L. Gray)
POKE 49152+16,10    (L. Red)
POKE 49152+14,5     (Green)
POKE 49152+13,6     (Dark blue)
```

– I would also suggest you set the border and background colors to black. Poke 53280,0: Poke 53281,0.

If you find the machine code is too fast to get a proper view of what is happening, put some dummy For/Next loops in your Basic code to slow things down.

The only other thing to do is to control the initial conditions. As I mentioned before, the ML will convert any text on the screen into cells. All you need to do is place the characters where you would like them and then Run the program. Of course, the characters R-u-n will also turn into cells. If you want to be a perfectionist and eliminate them, you'll have to include

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a Basic routine to rub them out before you make the first SYS (no, I'm not doing everything for you).

A Basic program to load the code for you follows. Remember to save it before running it. Once the code is in memory, it's safe from Basic. Enjoy!

```
5  REM 'LIFE-64' BY IAN ALLEN
10 I=49152
20 READ A:IF A=256 THEN END
30 POKE I,A:I=I+1:GOTO 20
49152 DATA 76,233,192,76,161,193,76,17
49160 DATA 192,87,90,81,91,6,5,15
49168 DATA 10,169,196,133,248,133,250,133
49176 DATA 252,169,0,133,247,169,42,133
49184 DATA 249,169,84,133,251,56,169,0
49192 DATA 233,1,133,253,169,4,233,0
49200 DATA 133,254,169,24,141,169,2,76
49208 DATA 66,192,32,180,192,206,169,2
49216 DATA 240,106,169,1,141,168,2,32
49224 DATA 86,192,238,168,2,173,168,2
49232 DATA 201,41,240,230,208,241,172,168
49240 DATA 2,24,136,177,247,113,249,113
49248 DATA 251,200,113,247,113,251,200,113
49256 DATA 247,113,249,113,251,141,167,2
49264 DATA 172,168,2,177,249,240,29,173
49272 DATA 167,2,201,2,240,16,201,3
49280 DATA 240,12,173,10,192,145,253,173
49288 DATA 16,192,32,226,193,96,173,11
49296 DATA 192,145,253,96,173,167,2,201
49304 DATA 3,240,6,173,12,192,145,253
49312 DATA 96,173,9,192,145,253,173,15
49320 DATA 192,32,226,193,162,24,160,0
49328 DATA 24,76,240,255,24,165,247,105
49336 DATA 42,133,247,165,248,105,0,133
49344 DATA 248,24,165,249,105,42,133,249
49352 DATA 165,250,105,0,133,250,24,165
49360 DATA 251,105,42,133,251,165,252,105
49368 DATA 0,133,252,24,165,253,105,40
49376 DATA 133,253,165,254,105,0,133,254
49384 DATA 96,169,43,133,249,169,196,133
49392 DATA 250,169,0,133,253,169,4,133
49400 DATA 254,24,169,42,133,247,169,196
49408 DATA 133,248,169,24,141,169,2,160
49416 DATA 0,177,253,205,12,192,240,25
49424 DATA 205,10,192,240,20,201,32,240
49432 DATA 16,173,11,192,145,253,173,14
49440 DATA 192,32,210,193,169,1,24,144
49448 DATA 7,173,12,192,145,253,169,0
49456 DATA 145,249,200,192,40,208,210,160
49464 DATA 0,177,249,160,41,145,247,160
49472 DATA 39,177,249,160,0,145,247,32
49480 DATA 180,192,206,169,2,208,184,165
49488 DATA 249,141,170,2,165,250,141,171
49496 DATA 2,160,39,185,43,196,200,145
49504 DATA 247,136,136,16,246,160,39,185
49512 DATA 43,196,160,0,145,247,173,43
49520 DATA 196,160,41,145,247,56,173,170
49528 DATA 2,233,42,133,249,173,171,2
49536 DATA 233,0,133,250,160,39,177,249
49544 DATA 200,153,0,196,136,136,16,246
49552 DATA 160,39,177,249,141,0,196,160
49560 DATA 0,177,249,141,41,196,76,172
49568 DATA 192,169,0,133,253,169,4,133
49576 DATA 254,169,24,141,169,2,160,0
49584 DATA 177,253,205,10,192,208,11,173
49592 DATA 12,192,145,253,173,13,192,32
49600 DATA 210,193,200,192,40,208,233,32
49608 DATA 180,192,206,169,2,208,223,76
49616 DATA 172,192,72,24,165,254,105,212
49624 DATA 133,252,165,253,133,251,104,145
49632 DATA 251,96,72,165,251,141,170,2
49640 DATA 165,252,141,171,2,104,32,210
49648 DATA 193,173,170,2,133,251,173,171
49656 DATA 2,133,252,96,256
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PETER PHILLIPS

Education can be fun

THE IIGS is now found in many schools, and there is an incredible range of educational software available. The IIGS *Buyer's Guide* lists over seven pages of educational software, although not all of it is IIGS specific. I have reviewed various educational programs over previous months, such as Geometry and Where in the World is Carmen Sandiego? This month I look at two more, including another from the Carmen Sandiego stable. And, to keep the variety going, a quick look at a game and a very popular shareware program.

World Geograph is a very comprehensive piece of software that has great appeal to users.

World Geograph, from MECC (Minnesota Educational Computing Corporation), is designed for a classroom situation and includes a comprehensive manual, two 3½ inch disks and a quick reference card. A classroom guide is also available that includes lesson plans, student handouts and textbook references. The program requires 768K of memory and for best operation, two 3½ inch drives or a hard disk. It uses the key disk protection scheme, but otherwise runs nicely on a hard drive.

After booting the program, a map of the world is displayed which invites the curious to explore. By locating the mouse pointer over a region, then pressing the Apple key together with the mouse button, the region will zoom into view. Further Apple-clicks will zoom up a country within the region. And, if you can't find a particular country, select Locate Nation in the Maps menu. The list of nations is extensive, and using this feature alone is very instructive.

The program uses a large database and data can be displayed as text or by colour shading. For example, by selecting Theme Map, a colour display showing either climate zones, elevation, energy consumption or population density will appear. A key to the colours can be selected to show the relationship between each colour to the quantity it represents. By using data tables, a comprehensive run down on the characteristics of a nation can be displayed. All sorts of categories are referred to, such as the average age of the male and female population, and even the number of TV sets per 1000 population.

Data can also be exported into an Appleworks spreadsheet, printed out, or if you have a video projector, can be displayed via the RGB output of the IIGS. The database is very extensive – it takes over two hours to print!

Quantities can be displayed in either metric or imperial, unlike most US software, and the database can be edited. To prevent students from altering data (either by mistake or on purpose!) the defaults can be set to limit access. Obviously, MECC know about school students and 'student proofing' is a feature of the program. The program has a retail price of $120, and the school version, which includes the *Classroom Guide* and a backup copy of both disks sells for $139. The review copy was supplied by Two Series Software, PO Box 1, West Hoxton Park 2171 NSW, (02) 606 9343.

Where in Time?

THE CARMEN Sandiego line-up has been one of Broderbund's best sellers, and the latest one, Where in Time is Carmen Sandiego? is typical. The baddies all have ridiculous names (Russ T Hinge, Minnie Series and so on), with crazy occupations. Miss Kari Meback is a cat burglaress who is unable to sell the kitties after she's stolen them! Although this program is for the IIe/IIc/IIGS, it works best of all on a IIGS as the mouse and enhanced speed make it that much easier to use. The manual recommends that the speed of the IIGS be set back to normal, but I found it better in fast mode.

The graphics are disappointing, as they are limited to that in the IIe/IIc, as are the sound effects. Still, it's all quite impressive, and the usual playing rules apply. However, instead of being limited to the 20th century, this version lets you travel back in time. The object is to solve the case, except you may find yourself back in the 18th century, on the way learning about historic events. This is the big feature of the Carmen games, in which learning happens as an incidental to the game.

The program is not copy protected, and is available on either 5¼ inch or 3½ inch disks. It runs well from a hard disk, though the 3½ inch version is also good, as only one disk is involved. The recommended price is $84.95, and the School version costs $20 more, being supplied with a teachers guide and a backup copy of the program. Both versions include a 1989 edition of the *New American Desk Encyclopedia*, which is amazingly informative and by no means US biased. The program is distributed by Dataflow – 134 Barcom Ave, Rushcutters Bay 2011 NSW, (02) 331 6153) – and the review copy was supplied by Two Series Software.

It may be a sign of a misspent youth, but pouring money into a pokie and pulling the handle is an activity I used to enjoy.

SoundSmith is a Shareware program from Spain, written by Huibert Aalbers, author of Laser Force and Jigsaw. The program is a 14 track sequencer that uses synthesised instruments in ASIF format. This allows those who own sound digitisers, such as Future Sound, to easily create additional instruments.

The program uses the standard IIGS interface, and songs or instruments can be loaded from pull-down menus. If instruments are loaded, a piano keyboard is displayed which can be played by clicking on the piano keys. If a song is loaded, a rather

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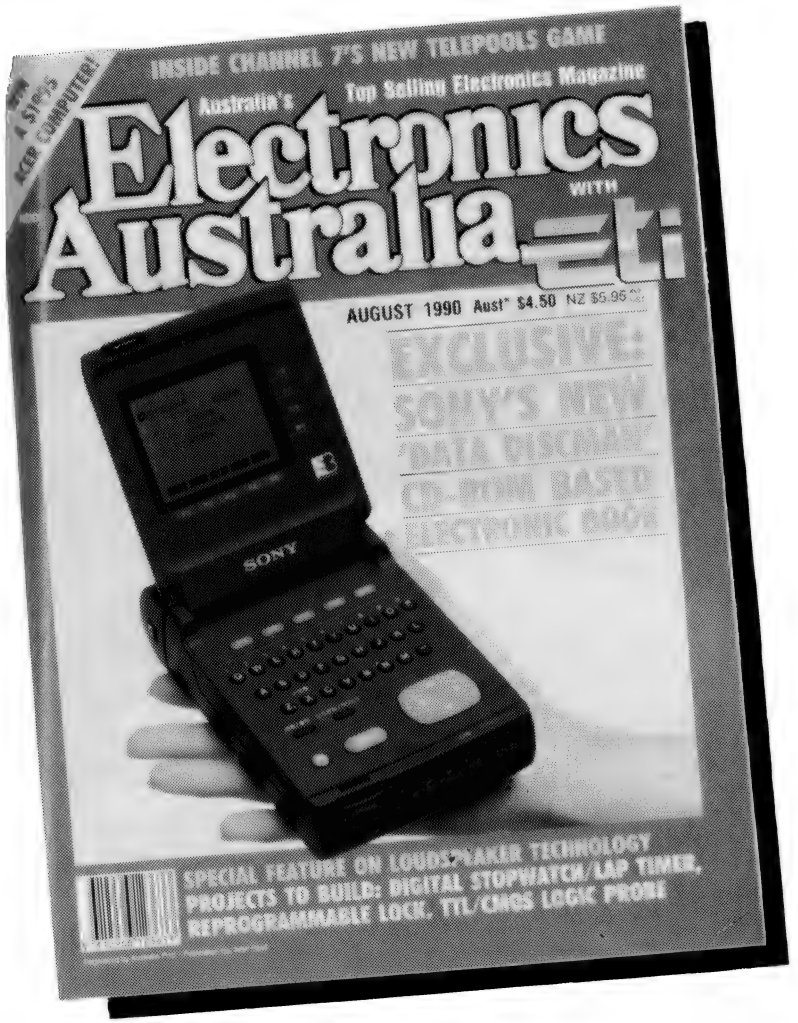
AND THE BEST!



Which one monthly magazine is virtually essential reading for anyone in Australia who is involved in, or interested in electronics? There is only one choice: *Electronics Australia with ETI*, which combines the best of both *Electronics Australia* and *ETI*.

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We have Australia's most experienced electronics writers, its most respected equipment reviewers, and its most lively and informed columnists. So whether you're a design engineer or research scientist, a service technician, a college student, a radio amateur or a keen enthusiast, *Electronics Australia with ETI* brings you a wealth of interesting and informative reading. It's by far the best way to keep up to date with all aspects of this challenging technology!

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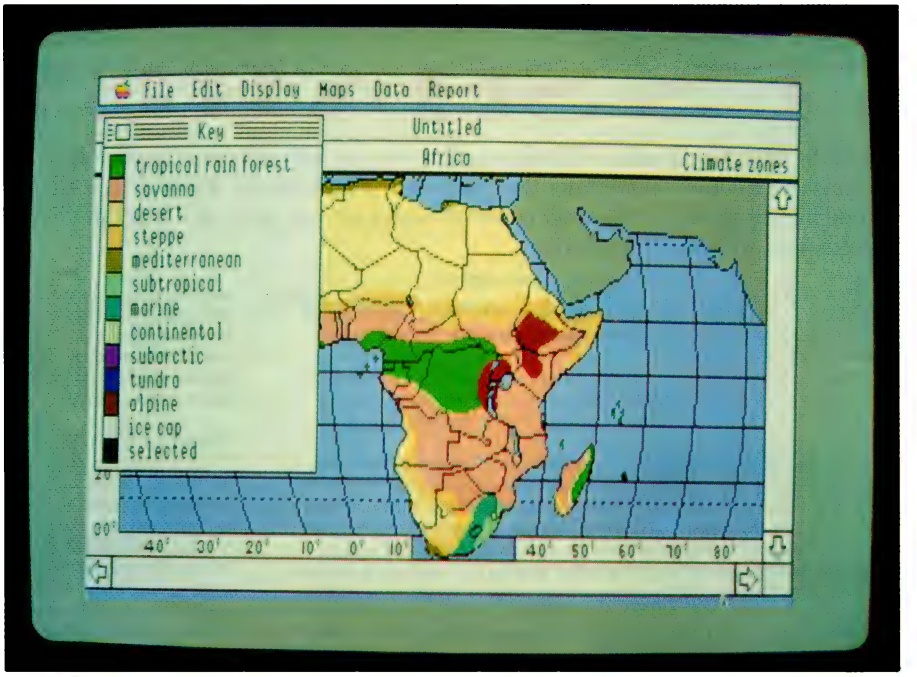
impressive graphic-based playback area is displayed, with animated VU meters. Any four tracks can be designated as playback tracks, and a range of different instruments can be used in the song. Some of the instruments are conventional, such as a piano, while others synthesise sounds that often defy description. You can have a song played with its original instruments, or with those already loaded.

Being Shareware, the idea is to send the author US$20, for which you receive a manual and the source code for the sound playback section of the program. The information on how to do this is displayed on the IIGS screen at startup. The program is very professional in appearance, and gives some excellent sounds. Although I have five data disks that contain songs and instruments, all of the songs are original rather than those from the popular repertoire. Still, the editing feature allow songs to be created, although this is rather tedious. But for $20, it's excellent value, and it uses the IIGS sound capabilities extremely well. The program is available from user groups, and my copy came from the Big Red Computer Club, 423 Norfolk Avenue, Norfolk 68701 NE, US.

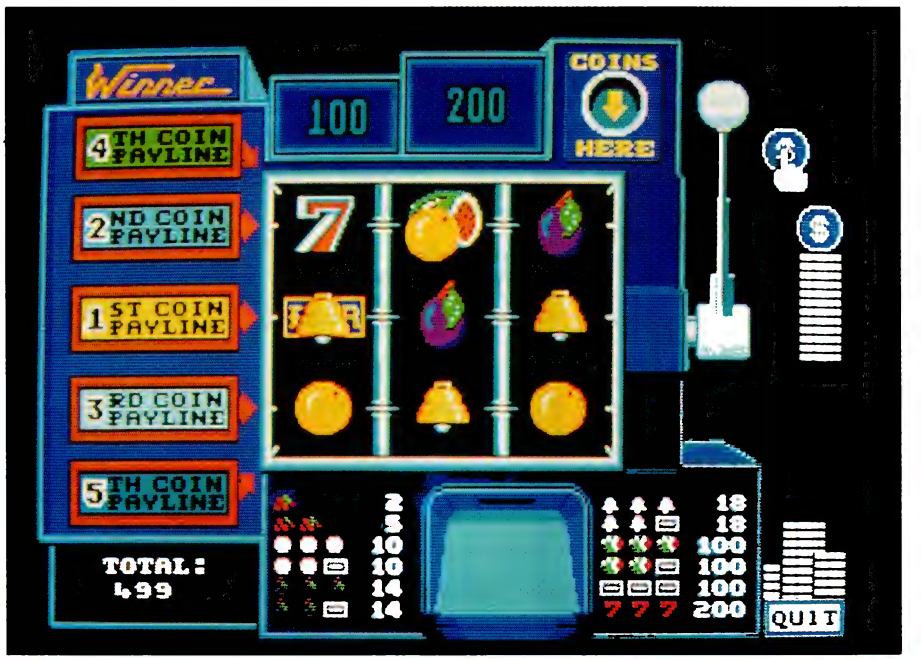


World Geograph is a very comprehensive piece of software – it is sufficiently simple for primary school use, yet sophisticated enough for Year 12 students. The manual is first class, and the program easy to learn.

Vegas Gambler

THIS ARCADE game is strictly for those who want to put their brain in neutral and spend pretend money. The game has four gambling options – roulette, blackjack, poker and slots. Slots is really poker machines, and in my opinion is the best game of the four. You place $1 coins into a poker machine and pull the handle. Amidst realistic sound effects, the three wheels either pay out or they don't, as in the real thing. It may be a sign of a misspent youth, but pouring money into a pokie and pulling the handle is an activity I used to enjoy. These days, I pour money into a housing loan, but I found 'playin' the pokies' on the IIGS created some of the old excitement as I urged jackpots to fall and to hear the sound of a payout.

The other games are also well simulated, although I found them rather boring as they are fairly repetitive. Roulette lets you gamble up to $200 at a time, from a pot of $500. If you lose the lot, the 'house' will loan you some more – good thing it's not for real! Poker requires coins in the slot, and the option is to hold selected cards and hope that the replacement cards come up trumps. Blackjack is a game I've never understood, but it is the most complex of the lot, which means it has more options. All in all, the game has excellent graphics, good sound effects and will appeal to those too broke to visit a casino.



Vegas Gambler lets you play the pokies without losing your pay packet – or play roulette, poker and blackjack if the mood takes you.

The review copy was supplied by GS Sales & Imports, 3 Turramurra Dr, Robina Waters 4226 Qld, (075) 529 099

How can Software only cost $5?

IT'S SHAREWARE!

Look at the ads! Any number will tell you that you can buy software for your IBM PC or compatible for only a few dollars. Well, you can't believe everything that you read. These $5 (or $4 or $7 or $10 or whatever) disks are only for you to evaluate the software - if you wish to use the software you must pay more to the author. This is SHAREWARE and it has revolutionised software distribution.

How it works

Shareware relies upon the honesty of the users of software to pay for the software which they use. To continue using the $5 (or whatever) disk is a breach of copyright in the same way as using a pirate copy of other software.

The great advantage of Shareware is that potential users are able to evaluate a product at little or no cost and then only purchase, or register, if they intend to continue using the product. Registration varies from $20 to $200, and because the conventional marketing channels are by-passed this is exceptional value.

Shareware users are even encouraged to copy their software and give a copy to their friends so they too can decide if they would like to use the product, and of course then pay for it.

Word would spread slowly if the author solely relied upon users just sharing copies with their friends. User groups are encouraged to share the software with their members on a non profit basis. Many user groups set up Bulletin Boards so that members can "down load" software which they would like to evaluate for use. This is another accepted way of distributing shareware.

Some commercial operations also distribute shareware and charge for the disks. The more they can sell the more profit they make so they encourage you to buy the evaluation copies and sometimes "forget" to tell you that if you want to continue using the software that an additional payment is required.

It is fine for these commercial operations to distribute Shareware as long as their ads clearly state that the additional payment is required. Software for $5 is just too good to be true!

What is Public Domain Software?

Public Domain software is created by authors who chose not to seek formal rights or royalties. There is no restriction of any kind on distribution of this kind of software. Most public domain software is games or utilities. There are very few complete products in the public domain.

Shareware software on the other hand is distributed so the user can evaluate the software to decide whether he will register with the author and continue to use the software.

Shareware is an alternate method of marketing software, not really a different kind of software. In fact the more successful Shareware products hold their own against their commercially distributed competitors. The greatest difference is that the Shareware product's packaging is not as fancy and the price is much lower.

Where can I obtain Shareware trial disks?

A collection of disks is generally referred to as a Library. A Library may be kept by a user group, a bulletin board operator or by a commercial diskette distributor.

Some education establishments, companies and government departments have a library on a CD-ROM (a large capacity read only disk drive using compact disk technology) and allow students to make copies at no or at a very low cost.

And of course it is quite acceptable for your friends to give you copies of Shareware software that they may be using or have evaluated.

The only restriction is that if you decide to use the software then you should register so that the author is rewarded for his work.

Do I need to join a Library?

Some commercial libraries and most user groups insist that you join before you can purchase disks. If you intend to purchase disks a properly prepared catalogue will make your selections easier and repay your membership costs many times over.

Other libraries allow purchases without any membership fees and some offer a free catalogue. The free catalogue is usually a very short description of available disks and is often given away as an insert in magazines. Of course there is no such thing as a free lunch — the brief descriptions in free catalogues mean that you will invariably purchase more disks than you really need. The descriptions are so short you really are taking a lucky dip!

What is PC-SIG?

PC-SIG is the world's most respected Shareware Library and contains well over 2000 disks. PC-SIG does NOT require you to become a member to purchase diskettes but is the leading publisher of information on Shareware. PC-SIG also makes its Library available on CD-ROM for companies, educational bodies and government departments.

Every two months SHAREWARE magazine is available in newsagents at around $6.50 a copy. The magazine describes new additions to the PC-SIG Library, has comparisons and reviews of available products as well as regular columns. The magazine is also available on a subscription basis at $20 per annum, a saving of $19.

"The Encyclopedia of Shareware" is a two volume catalogue with detailed descriptions of the disks in the PC-SIG Library. To make finding the disks you require as easy as possible the disks are grouped by category with extensive indexing. The two volume set is available at selected bookstores and computer shops at $39.95. If you choose to subscribe to SHAREWARE magazine for just $20 you can purchase the ENCYCLOPEDIA for only $29.95, a further saving of $10, and the post and packing is FREE.

For a total of only $49.95 you will not only have the best reference work available but you'll be kept up to date for a full twelve months. As a further bonus we offer special discounts to subscribers BUT you do NOT need to be a subscriber to purchase disks. There is no minumum purchase. Our regular prices for trial disks are - single disks $13, any five disks $50 and then additional disks in that order for just $5. Remember though it is easier to select the disks you would like if you have the two volume Encyclopedia and the magazine.

Can Software be Registered in Australia?

PC-SIG's distributor in Australia, Manaccom offers the full PC-SIG Library and also has arrangements with many authors to represent them in Australia. Yes, the complete registered copies of the best available Shareware products with manuals, telephone support and access to upgrades right here in Australia.

How Good is Shareware?

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1990 READER SURVEY

To help us keep you informed on current topics, we would like to know more about you and your interests in PCs and software. One lucky respondent will win a Qume Crystalprint Express pageprinter; to encourage early replies, the first 50 completed surveys we receive will be rewarded with a box of 3M floppy disks.

Just complete our 1990 Reader Survey, and you have a chance to win this 12ppm Qume Crystalprint Express pageprinter – it features PostScript and HP Laserjet emulations plus 3Mb of RAM. The printer, valued at $7130, is offered courtesy of Sigma Data. 3M will award a box of floppies (please nominate whether you want 5.25- 3.5-inch disks) to the first 50 respondents.

All replies are confidential. Please supply your name and address and a daytime phone number on a separate sheet of paper headed 'Your Computer Reader Survey' – do not include these details on the survey forms. Send the completed survey and contact details to: YC Reader Survey, PO Box 199, Alexandria 2015 NSW.

1) What type of PC do you most often use?
- ☐ IBM PC/XT or compatible
- ☐ IBM AT or compatible
- ☐ 80386-based system
- ☐ Laptop/portable PC
- ☐ Amstrad PC/PPC system
- ☐ Amstrad PCW
- ☐ Atari ST/STE
- ☐ Apple Macintosh II
- ☐ Apple Macintosh SE/Plus
- ☑ Commodore Amiga
- ☐ Hand-held computer

Other

2) How much memory does the PC you use the most often have?
- ☐ 512K or less
- ☐ 640K
- ☐ 1Mb
- ☑ 2 to 4Mb
- ☐ more than 4Mb

3) How much hard disk storage?
- ☐ None, Single floppy drive
- ☐ None, Dual floppy drives
- ☐ 10Mb or less
- ☐ 20Mb
- ☑ 40Mb
- ☐ 100Mb

Other:

4) Is the PC connected to a network?
- ☑ No
- ☐ Yes, 3Com
- ☐ Yes, Ethernet
- ☐ Yes, Token Ring
- ☐ Yes, LANtastic

☐ Yes, Other:

5) What other computers are attached to the network?
- ☐ 3 or fewer other PCs
- ☐ 4 to 8 other PCs
- ☐ 9 to 20 other PCs
- ☐ More than 20 other PCs
- ☐ Mainframe
- ☐ Minicomputer

6) What type of monitor is attached to the PC?
- ☐ Lo-res monochrome
- ☐ Hi-res monochrome
- ☒ CGA/EGA
- ☐ VGA
- ☐ Multiscan

Other color:

7) What type of printer do you use most often?
- ☐ Daisy wheel
- ☐ 9-pin dot matrix
- ☐ 18-pin dot matrix
- ☒ 24-pin dot matrix
- ☐ Inkjet
- ☐ Laser printer without PostScript
- ☐ Laser printer with PostScript

Other:

8) Which of the following peripherals and add-ons are attached to the PC or network?
- ☐ CD-ROM drive
- ☐ Fax board
- ☐ Graphics board
- ☒ Maths co-processor
- ☒ Memory expansion board
- ☐ Modem
- ☒ Mouse
- ☐ Scanner
- ☐ Tape back up

Other: .....

9) Please indicate what computer equipment you are likely to buy in the next 12 months?
- ☐ IBM AT or compatible
- ☐ 80386-based system
- ☐ Laptop/portable PC
- ☐ Amstrad PC/PPC system
- ☐ Atari ST/STE
- ☐ Apple Macintosh II
- ☐ Apple Macintosh SE/Plus
- ☐ Commodore Amiga
- ☐ Games console
- ☐ Hand-held computer
- ☐ Other PC: .....
- ☐ CD-ROM drive
- ☐ Fax board
- ☐ Graphics board
- ☐ Hard disk – new/additional/larger
- ☐ Laser printer with PostScript
- ☐ Laser printer without PostScript
- ☐ Printer – dot matrix
- ☐ Maths coprocessor
- ☐ Memory expansion board
- ☐ Modem
- ☐ Mouse
- ☐ Monitor – hi-res monochrome
- ☐ Monitor – CGA/EGA
- ☐ Monitor – VGA
- ☐ Monitor – multiscan
- ☐ Scanner
- ☐ Tape back up

Other peripherals or add-ons:

10) Approximately how much do you intend to spend on the hardware ticked in Question 6?
- ☐ up to $1000
- ☐ up to $2000
- ☐ up to $4000
- ☐ up to $10,000
- ☐ up to $20,000
- ☐ more than $20,000

11) Please indicate the three most common types of computer applications you use –

- ☐ Accounting
- ☐ Applications development
- ☐ CAD/CAE
- ☐ Communications
- ☐ Database management
- ☐ Data input/analysis
- ☐ Desktop presentation
- ☐ Desktop publishing
- ☑ Education
- ☑ Graphic design
- ☐ Inventory control
- ☐ Order entry/invoicing
- ☐ Personal information/contact manager
- ☐ Process control
- ☐ Project management
- ☐ Programming
- ☐ Recreation
- ☐ Spreadsheet
- ☐ Statistical analysis
- ☑ Wordprocessing

Other: .....

12) What new applications are you likely to buy in the next 12 months –

- ☐ Accounting
- ☐ CAD/CAE
- ☐ Communications
- ☐ Computer based training
- ☐ Database
- ☐ Desktop publishing
- ☐ Disk management utility
- ☐ Education
- ☐ Electronic mail
- ☐ Graphics
- ☐ Microsoft Windows
- ☐ Network/multi-user system
- ☐ Personal information manager
- ☐ Programming language
- ☐ Presentation graphics
- ☐ Spreadsheet
- ☐ Project management
- ☐ Wordprocessing

Other: .....

13) Approximately how much do you intend to spend on the software ticked in Question 9?

- ☐ $500 or less
- ☐ up to $1000
- ☐ up to $2000
- ☐ up to $10,000
- ☐ up to $20,000
- ☐ more than $20,000

14) How would you describe your company's primary business?

- ☐ Advertising/public relations/marketing
- ☐ Accounting
- ☐ Agricultural
- ☐ Banking/insurance/finance
- ☐ Computer distribution/manufacturing
- ☑ Computer consultancy/service
- ☐ Construction/mining
- ☐ Education
- ☐ Engineering
- ☐ Legal services
- ☐ Medical services/health
- ☐ Public service
- ☐ Real estate
- ☐ Retail
- ☐ Tourism/leisure activities
- ☐ Transportation
- ☐ Warehousing
- ☐ Other professional services

.....

- ☐ Other industry

.....

15) What department or field do you work in?

- ☐ Accounting/finance
- ☐ Administration
- ☐ Marketing/public relations
- ☐ MIS/DP
- ☐ Operations/manufacturing
- ☐ Personnel/human resources
- ☐ Sales
- ☑ Self-employed
- ☐ Training/education

☐ Other

16) How would you describe your position?

- ☐ Owner/CEO/partner
- ☐ Director/executive
- ☑ Engineer/technician
- ☐ Manager
- ☐ Management assistant/coordinator
- ☐ Professional/specialist
- ☐ Secretarial/clerical

☐ Other .....

To help us tailor the magazine to suit your needs, we need to know the following personal details. These will be kept strictly confidential.

17) How often do you buy Your Computer?

- ☑ Subscribe
- ☐ Every month
- ☐ Every two or three months
- ☐ Less often

18) How long have you been reading the magazine?

- ☐ Less than 1 year
- ☐ 1 to 2 years
- ☐ 2 to 3 years
- ☐ 3 to 4 years
- ☑ more than 4 years

19) If you are not a subscriber, what influences your decision to buy the magazine?

- ☐ Regular columns

Which? .....

- ☐ News features
- ☐ Technical features
- ☐ Software features
- ☐ Software reviews on specific products

What type? .....

- ☐ Hardware features
- ☐ Hardware reviews on specific products

What type?

20) What other computer publications do you read regularly?

.....

.....

21) What are your three main areas of interest in a computer magazine?

- ☐ Animation/3D graphics
- ☐ CAD/engineering
- ☐ Application stories
- ☐ Computer security/viruses
- ☐ Communications
- ☐ Computer based training
- ☐ Desktop publishing
- ☐ Desktop video
- ☐ Developing technologies
- ☐ Education
- ☐ Hardware news/developments
- ☐ Hardware reviews – laptops/portables
- ☐ Hardware reviews – PCs
- ☐ Hardware reviews – add-ons and peripherals
- ☐ Hardware technology
- ☐ Multiuser systems
- ☐ Networks
- ☐ Presentation graphics
- ☐ Programming
- ☐ Recreational computing
- ☐ Software news/developments
- ☐ Software reviews
- ☐ Tips on hardware use
- ☐ Tips on software use
- ☐ User stories

22) Which two features in the magazine in the last 12 months did you find to be the most useful/informative?

.....

.....

23) Which of our regular features do you read least?

24) How many years PC experience have you had?

- ☐ less than 1
- ☐ 1 to 2
- ☐ 2 to 3
- ☐ 3 to 4
- ☑ more than 4

25) Age –

- ☐ Under 20
- ☐ 20 to 25
- ☐ 26 to 35
- ☑ 36 to 45
- ☐ 46 to 55
- ☐ over 55?

26) Are you –

- ☐ At school
- ☐ At university/technical school

Course: .....

- ☑ Employed – full-time
- ☐ Employed – part-time
- ☐ Retired
- ☐ Unemployed

27) Please indicate your approximate income –

- ☑ Under $25,000
- ☐ $25,000 to $30,000
- ☐ $30,000 to $40,000
- ☐ $40,000 to $50,000
- ☐ $50,000 to $80,000
- ☐ over $80,000

28) If the decision were yours, what would you change first in Your Computer?

.....

If there are any further comments you would like to make, please include them on a separate sheet of paper or address them to: 'Write Bytes', Your Computer, PO Box 199, Alexandria 2015 NSW. Thank you for taking the time to answer our Survey. ☐

Conditions of entry: *1)* The competition is open only to residents of Australia whose completed Reader Survey is received before the last mail 3/12/1990; entries received after this date will not be eligible; the senders of the first 50 completed surveys opened will each receive a box of 10 3M floppy disks. *2)* Employees of the Federal Publishing Company Pty Ltd, Sigma Data Corporation Pty Ltd and 3M Australia Pty Ltd and their families are not eligible to enter. *3)* South Australian residents need not purchase a magazine to win, but may enter (once only) by submitting their names, addresses and a hand-drawn facsimile of the survey. *4)* Prizes are not transferable nor exchangeable and cannot be converted to cash. *5)* The judges decisions are final and no correspondence will be entered into regarding the competition. *6)* Descriptions of the competition and instructions on how to enter form a part of the competition. *7)* The competition will commence on 1/11/1990 and will close with the last mail 3/12/1990. *8)* The draw for the Crystalprint pageprinter will take place in Sydney on 4/12/1990 and the winner will be notified by telephone and letter. The winner will also be announced in *The Australian* on 7/12/1990 and a later issue of *Your Computer*. *9)* The prizes are one only Qume Crystalprint pageprinter (value $7130), which will be awarded to a respondent drawn at random from the entries; the senders of the first 50 responses opened will receive a box of 10 floppy disks (value $10 per box of 5.25-inch disks and $13 per box of 3.5-inch disks). *10)* The promoter is The Federal Publishing Company Pty Ltd, 180 Bourke Rd, Alexandria 2015 NSW. Permit No. TC90/3329 issued under the Lotteries and Art Unions Act 1901. Raffles and Bingo Permit Board Permit No. 90/2346 issued on 8/10/1990; ACT Permit No. TP90/1365 under the Lotteries Ordinance Act, 1964.

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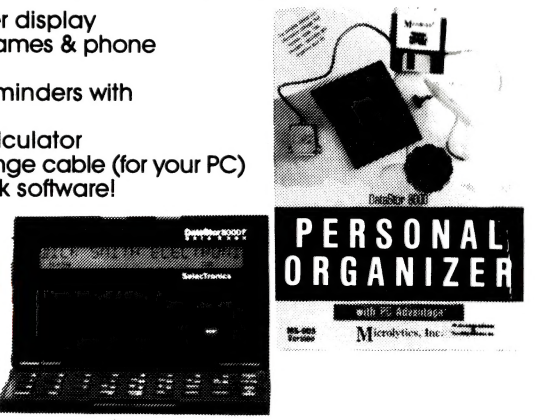

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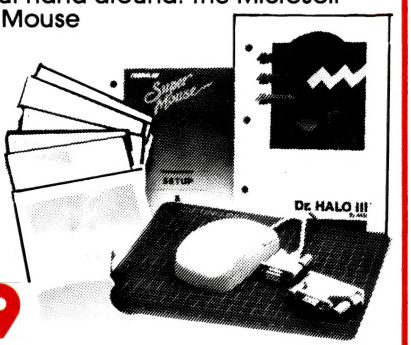

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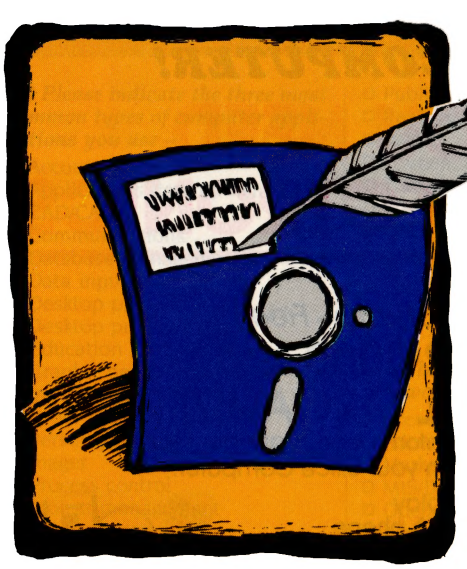

WRITE BYTES

YOUR COMPUTER READERS' FORUM

Here's your chance to air your view or gripe about the computer industry, or to ask about a problem you've been unable to solve. And – we always like to hear about what we are doing right and wrong by our readers. Write to: ***Write Bytes, Your Computer, PO Box 199, Alexandria 2015 NSW.***

Shareware

Here are some of my experiences after buying several shareware disks: The disk with the text analyser I wanted actually had printer utilities on it; the first replacement was unreadable because of sector errors and the second had an error in the installation batch file so it wouldn't install on a hard disk. The utility I bought it reduces two pages to fit on one side-by-side and refuses to print the last line of each page. I knew the thesaurus I acquired only had American spellings, but I could live with that; the problem is there are only 5006 words (at least 100 of them *misspelled*) in it and weird nouns are constructed by adding -ment, -ance, or -ness to the ends of words and un- or non- to the beginning. Finally, a game I got to teach my kids arithmetic has them catching Wombats in a trap. Heavens above, the Wombat is a protected species!

It's high time the shareware industry got its act together. Much better quality control is needed. Let's clean up the industry by complaining loudly until only reasonable products are distributed.

Brian Robson
Strawberry Hills, NSW

I asked Ian Mackay of the Association of Shareware of Professionals to reply: Some of the more successful authors in the US became concerned that their products were being represented as '$5' software, so they joined together as the Association of Shareware of Professionals (ASP) and set down certain guidelines. Amongst other things, these guidelines state that the author's product must be full-featured (not 'cripple-ware') and distributors of members' shareware must also meet certain criteria. 'Complaining loudly' will certainly help, but a more effective approach is for users to only purchase trial disks from distributors which are members of the ASP. The catalogues from these companies will note which products came from ASP authors – this gives an immediate indication of the level of professionalism in the program. While you don't mention all of the programs bought by name, I can think of two reasons why you encountered that set of problems: first, either because the seller neglected to mention that further payment was necessay if a program was useful, or because users neglected to forward payment to the author, or the author simply could not afford the time and money to update or maintain the software. The other is that some resellers are quite content to go on (very profitably) copying and selling the same program for years on end without regard to the quality of what they are offering for the money.

Let's not lose sight of what shareware is about – it is a marketing method whereby software can be evaluated at a very low cost. If the program is buggy or crippled, the user is under no further obligation. Additonal payment is only required if the program is found to be useful – good shareware can ultimately be encouraged by users meeting that obligation since authors need to eat and to have a roof over their head, too.

Where's Shrunkle?

I've just looked through the magazine up to here and there's no treatise by the man I've come to rely on to keep me informed on the industry. Where's Vern V. Shrunkle M.D. (Pear's Medical Book)? His recent tips on medicine (October), networking (September), backing up (August) and communications (July) have been absolutely invaluable and I look forward to them each month.

Mrs V.V. Shrunkle Sr
(only distantly related)
Rookwood, NSW

Vern V. Shrunkle B.A. (not looking too good, Madras) has been despatched on a top-secret assignment to the US – watch out for him, he'll be back next month. □

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